THE WORLD'S W
December 1902
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EX-PRESIDENT GROVER CLEVELAND

AS HE APPEARED AT THE PRINCETON INAUGURATION

"On this issue [tariff reform] I am satisfied that the Democracy is face to face with a great opportunity. **All the signs of the times point to a recognition, far beyond all party lines, of the benefits which would accrue to the people by a readjustment of the tariff, and it would be worse than folly for the party, under the stress of any temptation or yielding to any allurement, to permit this to be subordinated to or overshadowed by any other issue."**—*Grover Cleveland.*

THE WORLD'S WORK

DECEMBER, 1902

VOLUME V NUMBER 2

The March of Events

AS the end of the year draws nigh we may congratulate ourselves that it will leave the world in much better plight than it found it. When it began there was war in South Africa and there were troublesome hostilities in the Philippines. Now peace is broken, if broken at all, only by the unrest in Venezuela and Colombia and in Hayti that follows their revolutions and in Africa where the "Mad Mullah" has attacked the British. And not only is the world at peace, but the great nations are more securely linked together, perhaps, than they ever were before. New forces for peace are at work—especially two of the strongest possible world influences: an organized and closely knit commerce, which none can afford to disturb for fear of a lasting loss of trade, and in particular the overwhelming commercial power of the United States, which would gain a still surer lead by the suspension of industrial activity in any important country. The little periodical adjustments of power and of privilege that the nations used to make by special treaties were crude and weak guarantees of peace in comparison with the compelling power of modern commerce and all that it implies. The most recent wars were really only frontier wars.

Men without historical knowledge easily believe that their own era is a new era in the world. But men with historical knowledge now see international conditions that are radically different and radically better for peace than any of the battered centuries behind us knew. The unfettering of the dominant race of men by free institutions to free opportunity on the most fruitful continent and the industrial rise of the Republic, fortifying its political power, have put all nations in a new relation to one another and in a new relation to civilization This revolutionary fact has become plainer this year than it ever was before. Its far-reaching significance we do not yet see; but it looks like a great force that will work for the steadying of governments and for the sane direction of endeavor for centuries to come. For it is the natural result of a great law of human development and not an advantage won by the strength of armies or by the skill of diplomatists or by any other power that may change with a change of rulers and of generations. The industrial man becomes stronger, the political man weaker; and economic force is beginning to rule the world as military force once ruled it.

A YEAR THAT HAS BROUGHT A WIDER OUTLOOK

SOME of the definite proofs that have been given this twelvemonth of the nations' adjustment to a future larger and humaner than the past are worth recalling. The Boer war ended with the promise of a more liberal reconstruction of South Africa than England has been accustomed to make

to a subjugated people. That this liberality was wrung from the conquerors by the unexpected endurance of the Boers may be true. But it fits in not only with the English policy of our time but with the humaner mood of the world. An even greater departure from preceding methods of colonial warfare and administration has been made by our dealing with the peoples of the Philippine Islands. Cuba set up her own government in due time, and now that the sluggish politicians of that young republic know the conscience of the people the details of our honorable programme will unquestionably be carried out.

Between the great powers there has been no serious friction. England concluded a five-year treaty with Japan that makes peace in Asia more stable. Our own diplomatic triumphs for fair dealing have continued under Mr. Hay's management, for no other international statesman is writing so large a chapter of contemporaneous history. Germany sent a royal prince to express her good will to us. The change of Prime Ministers of England did not break the continuity of policy, and under the king the great empire is as stable and as sane as it was under the great queen. The Australasian colonies have economic and administrative difficulties, and there is some danger of local disturbance elsewhere in the empire, nor did the conference of colonial ministers bring concrete results; but England's power is held in bonds for peace everywhere by the need of her industrial awakening; and it is interesting to reflect that the subject that now profoundly agitates the kingdom is popular education. It was to the broader education of men into an international view of life that the most successful of modern English adventurers gave his thought when he made his will, and it is to education that the builders of colossal American fortunes give with a lavishness that marks a new era.

The year would be made memorable, if it had no other claim to distinction, by the demonstration that the Hague arbitration tribunal may settle international contentions. The submission to it of the long-standing case of the "Pious fund" by the United States and Mexico does not prove that in the future all or many international disputes may be settled by it, but it has definitely and auspiciously made an excellent beginning of beneficent activity.

TWO NOTEWORTHY CHANGES IN PUBLIC THOUGHT

AT home the year so far has been noteworthy in the best way that a year can distinguish itself—by the continuation of a generally diffused prosperity. If the foolish coal strike could have been left out of the calendar, it might have been said that our chief excitement has been caused by the very excess and ambition of prosperity; for we have probably talked more about trusts, domestic and international, than about any other single subject. Mr. Morgan has held the centre of the stage more constantly and more conspicuously than any other one private citizen, and yet he is one of the most reticent of men.

It is in prosperous times that the normal organization of industry goes on; for in such times men are energetic and hopeful and ready to bring things to pass. In a sense, therefore, continued organization is a wholesome sign—up to the limit of normal action; for there is a point beyond which it becomes the mere taking of a mortgage on the future. Then—if the future does not yield the big returns on its capitalization—a day of reckoning will come. It will come sharply, too.

No man will dare predict early disaster in specific terms; for no such prediction is warranted from facts that are now obvious. But every thoughtful man knows that Attorney-General Knox spoke the truth when he said that the chief evil of trusts is their overcapitalization. In this era of almost incalculable prosperity there has been an irresistible tendency to overcapitalization—to capitalization on the basis of the earnings of an exceptionally prosperous time.

But there has been an enormous gain during the year from the popular discussion of trusts and trade. Public opinion has asserted its growing determination to protect the public interest, but it has asserted this determination less in a wish to make indiscriminate attacks on trusts than to deal with them in a just and conservative way. The trust-smasher is less in evidence, and the trust-regulator is more. The literature of the subject that has most commended itself is such treatises as the President's more conservative speeches, the Attorney-General's address at Pittsburg, Prof. James B. Clark's little book on the regulation of trusts, and other such arguments and appeals for the strengthening of conservative laws against monopoly and in

Photographed by Frederic Colburn Clarke

FRANK NORRIS

DIED OCTOBER 25, 1902.

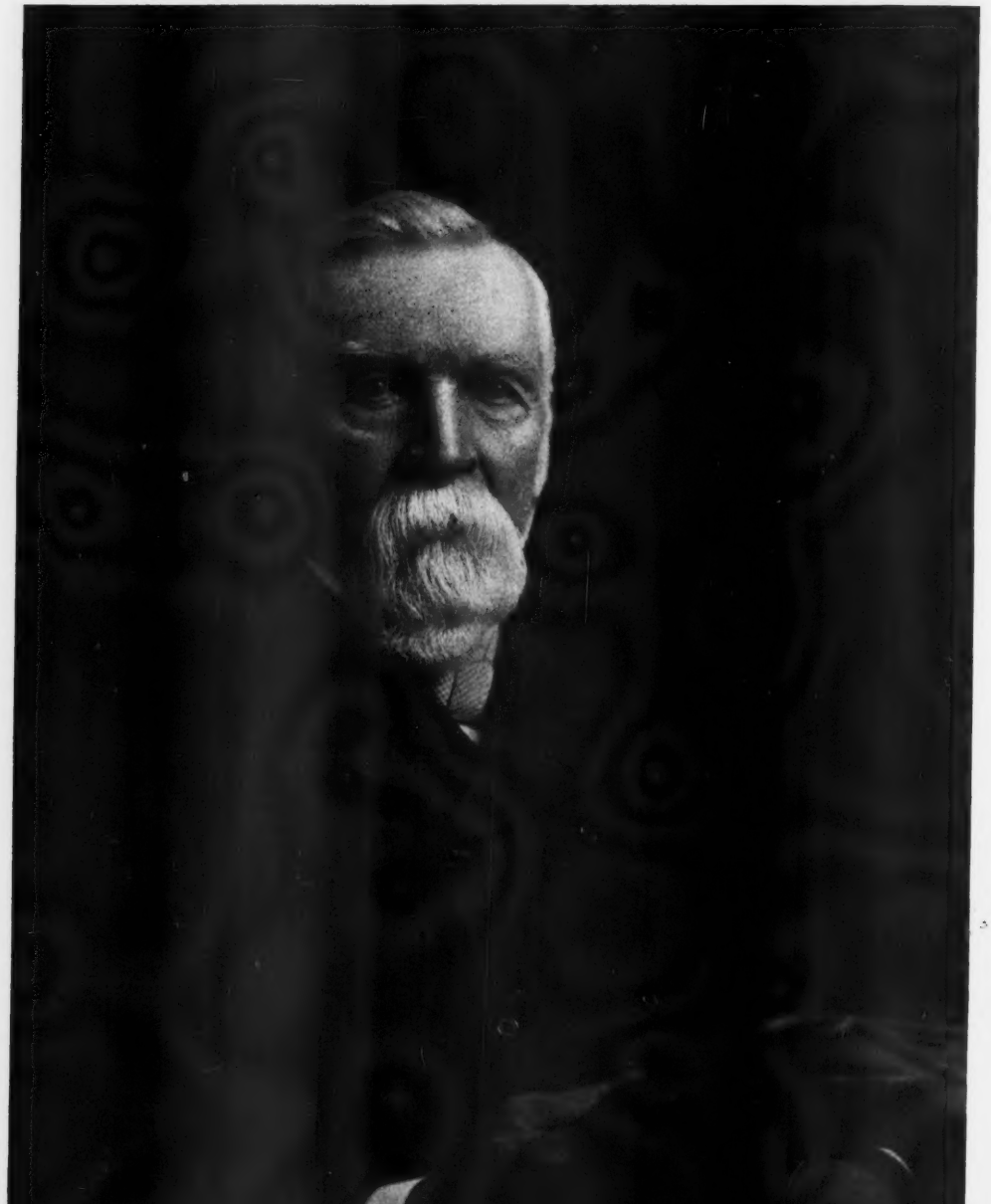
ELEANORA DUSE

THE GREAT ITALIAN ACTRESS NOW PLAYING IN THIS COUNTRY

Photographed by Fowler

DR. EDMUND J. JAMES

THE NEW PRESIDENT OF NORTHWESTERN UNIVERSITY



MR. JOHN FRITZ, IRONMASTER

"John Fritz is a living proof of the results of individual and industrial liberty in a country endowed with boundless resources. In vain shall we seek for a like career in nations or in countries where the individual initiative has been suppressed. . . . He is an example of the free spirit of American institutions, a beacon light warning the present and coming generations against permitting any invasion of the principle of the liberty of the citizen, which alone has made our beloved country great and free."—*Abram S. Hewitt.*

the encouragement of publicity and for permitting the common law to work its restraining and regulating influence according to the great principles that it embodies.

Then, too, a strong impetus has been given by the discussion of the trusts to the reduction of the tariff, not only on trust-made articles but on many more. The rising tide of opinion in favor of tariff reform must be put down as one of the notable movements of the year. It did not make itself felt in the election because of bad leadership; but the steady growth of opinion has gone on. It is the one active subject in our political thought to which the serious-minded public man will give his most earnest attention. Most other subjects are artificial or temporary. This has a staying power and it will not be talked down. The day of action, however, is yet at some distance in the future, because of the very great personal popularity of Mr. Roosevelt and of the pitiful lack of Democratic leadership.

The two most important changes, then, that have taken place in the public thought and purpose during the year are the steady growth of a determination to regulate trusts by conservative methods, for the public mind has swung away from a mere destructive mood, and the increasing earnestness about a reform of the tariff, when the time for action comes.

MR. VANDERLIP'S CONSERVATIVE WARNING

THE very fact that prosperity does continue is putting far-sighted men in a thoughtful mood; for radical financial changes are taking place as the result of the revel of organization that we have been indulging in. When organization is so effected or effected so far as to cause a general inflation of values or of credit, a day of reckoning must come—unless a return to conservative action be taken in time to prevent it.

Mr. Vanderlip, formerly Assistant-Secretary of the Treasury, who is a student of Old World financial conditions as well as of our own, has given what he called a conservative note of warning that comes with great timeliness He has pointed out that there has been an increase of $1,300,000,000 in the deposits of the national banks alone during the last two years, while the basis of gold and legal tender has slightly decreased. This increase of bank liabilities and of bank credits has been caused in great measure by the conversion of the ownership of industrial establishments into shares and bonds—that is, into bank collateral. With the banks doing a top-heavy business—their credits thus enormously extended—and with so much of the formerly liquid capital of the country now locked up and "fixed" in many forms of industry, there is great theoretical danger. And it would quickly become an actual danger if any untoward financial event of large importance were to happen. If the banks were forced by any shock to the general situation to call their loans, we should be in imminent danger of such a general and sudden curtailment of credit as would produce stagnation if not panic. The best time for conservative action is while it may prevent trouble. It is too late after trouble has come.

Mr. Vanderlip does not make a cry of alarm, but only of warning. He is a scientific and not a sensational student of financial conditions. But he did a distinct public service by his conservative explanation of danger. Every far-sighted man feels the truth and opportuneness of it.

THE NOVEMBER ELECTIONS

THE November elections very emphatically sustained the President and his party. The Republican majority in the House of Representatives was somewhat reduced; but at the mid-Presidential election the dominant party is at a disadvantage, and some Republican loss was expected. The gains of the Democrats were not large enough to show that they are regaining unity of purpose, nor to indicate that any great tide of public feeling is yet running in their favor. The two Democratic strongholds are New York City and the Solid South.

The most noteworthy local result was the increased Democratic vote in New York City. All factions of the party there are again united. Tammany showed its full strength. Its huge machine is in good voting order in spite of the troubles of boss-ship that have come since Boss Croker nominally resigned. The machine is greater than any boss, and it showed a compactness of its followers that looks dangerous for the reform party when the next local election comes.

The result of the November elections throws no new light on the next presidential contest.

Mr. Roosevelt remains in the centre of the Republican stage. The Congressional election signified the country's hearty approval of his administration. No Democrat won new distinction or prominence such as to suggest his nomination for the presidency. Mr. Coler polled a very large vote in New York, but he was defeated, and at best he is hardly made of presidential material even in times when few men are wholly safe from accidental nomination; and Mr. Hill is where he was before—except that he is additionally hampered now by his platform in favor of the government ownership of coal mines. The next presidential contest will be between Mr. Roosevelt and a yet unknown Democrat, with the chances more strongly in Mr. Roosevelt's favor than they have seemed in favor of any man in our recent history two years before the election. The one thing he has most to fear is not any particular Democratic candidate now within sight, but his possible running-mate known by the name of Hard Times. Whenever *he* comes into the field, the present political contentment and apathy will be rudely disturbed.

A NEW CHAPTER IN SOUTHERN POLITICS

THE movement begun a few months ago in North Carolina to exclude Negroes from Republican meetings spread to several other Southern States almost instantaneously. Neither party in the South wants a solid mass of Negro followers, for with such a mass it cannot get the support—certainly not on local questions—of any considerable number of influential whites. There is nothing left for the Negroes to do but to refrain from political activity or to make a political party of their own. Such of them as are not disfranchised may vote; but if the white Republican party succeed they will not have representation even in conventions.

The aim of the new movement is, of course, to split the solid white Democratic ranks; and in several States, notably in North Carolina, men of prominence who have hitherto been Democrats have come into the new party. It is thought that the new party will receive the support of many such if it succeed in establishing itself.

The most serious difficulty that it encounters is the necessary opposition of the National Republican party and of the Republican administration. No National Republican convention could give seats to delegates who came from organizations that openly excluded men wholly because of their color—provided there were contesting delegates from other organizations that made no such discrimination. Nor could any Republican administration lend its approval. Now, since the Republican party in most of the Southern States has for this long generation lived chiefly on the loaves and fishes that come from these two sources (for it has been an abject and mendicant party), the question is, can the new organization really supersede the old? Will the undisfranchised Negroes and their leaders retire?

If they do retire or are so put in the background that the white Republican party in these States wins recognition by the National party, the solid white South will be divided. What will become then of the solid Negro South? Will it be divided, too? Or will it remain compact and hold the balance of power between Southern Democrats and Southern Republicans? Here lies the danger.

But, since the race feeling is stronger than party feeling, the probable outcome will be the successful establishment of the white Republican party in those States, whether few or many, where it has strong leaders, the practical retirement for a time of the Negro from political organization, and at last, whenever either white party needs the colored vote, a rivalry between them for it. The thing most to be feared is that this rivalry may tempt to corruption. But such a result need not follow. When the Negroes reappear in politics, as their disfranchisement is gradually overcome by their education and their thrift, they also may divide and some become members of one party and some of the other. If the political solidity of each race be thus broken Southern political life will enter a new era.

In the meantime, three facts have been made plain. The Negro is spurned by white men of both parties; there is a growing division of political opinion among the Southern whites; and the National Republican party has an embarrassing dilemma to face.

THE DEEP SERIOUSNESS OF LABOR UNIONS

THOUGHTFUL men in the United States, whatever their relation to industrial life, are thinking more seriously about the problems presented by labor and its organiza-

tion than they have ever thought before. In proof of this increasing seriousness only the following facts, out of many such, need be set down:

I

Mr. Alfred Mosely has brought to the United States members of nearly every English trade—founders, carpenters, printers, plasterers, shipbuilders, cotton spinners, tailors, weavers and perhaps a dozen more—and they have been investigating, each in his own trade, the methods of work and employment here. The motive of this interesting practical study of American labor and of its ways is, of course, to discover how the American manufacturer turns out a greater volume of work per man than the English manufacturer. It has been made plain by a year's discussion on both sides of the Atlantic that the restriction of output by the English trades unions is one of the important causes of the lessened efficiency of the English working system as compared with the system in vogue in America.

Simultaneously with the coming of this party of English workmen, it has become obvious to every man who knows anything about the subject that there is a distinct tendency in some of our trades unions—notably in the building trades, but not in these only—to do precisely what the English trades unions have done. They limit the amount of work that a man or a group of men may do. They restrict output. They repress individual initiative and ambition. This is not yet true of all unions, but it is already true of some, and others show a tendency in this same direction.

II

Another phase of the same significant tendency is explained in the following statement of the owner of a shop, whose output is products of iron and steel: "My shop is a union shop. I have no trouble with the union. But I have proved to my own satisfaction that it makes men less efficient workmen, that it prevents the development and the rise of the best men, and that it prevents the normal growth of my business. In short it hinders industry. I have proved this by a long and minute comparison of my shop with a similar shop that is non-union and that pays its men by the piece. In the other shop the men make higher wages—the best men very much higher. The shop, too, gets a larger return for the wages it pays, because the work is better. The men are of a higher average than my men. They are better workmen; they are more successful; they are more ambitious; they are better citizens. I do not now turn my shop into a non-union one because I should have a strike on my hands and all sorts of trouble, and my business would be seriously interrupted at a prosperous time. I simply can't afford to do it now. Many of my men feel as I do. They would like to break away from the union. But their trade is well organized. There are not many non-union shops. They do not dare quit the union. But the best of them feel repressed by it."

III

A step to make the labor unions more serviceable is under discussion in Massachusetts. A bill will be introduced at this winter's session of the Legislature to require the incorporation of them. Massachusetts has an elaborate and rigid corporation law. The proposal now is to bring labor unions under the same sort of responsibility that corporations must assume, so that they may sue and be sued, and so that they will be, as other corporations are, within reach of the courts for their actions.

One union at least—perhaps there are more—has for some time been incorporated; and the compulsory incorporation of them has many times been discussed. The friends of this definite movement in Massachusetts expect that such a requirement will make them more useful. It is an effort to help the laborer by lifting the union into responsibility. It is the reverse of the destructive plan that the manufacturer just quoted would apply. He would abolish them if he could.

IV

The next significant fact is the recommendation by the Illinois State Federation of Labor that all members of labor unions who are also members of the State militia shall resign from the militia. This proposition has been favorably regarded by some other labor organizations. It has done more than any other single recent declaration or action to cause a public distrust of such unions as favor it. It hints of a class separation that in turn hints of anarchy.

V

Mr. Abram S. Hewitt, who favors the organization of labor, wrote a letter that was read at the recent celebration of the eightieth birthday of Mr. John Fritz, the eminent iron and steel maker, which admirably expresses the fear that the unions are in danger of preventing the development of exceptional men. Mr. Fritz, who, by his inventions and improvements of processes, has conferred an inestimable benefit on mankind, rose from the working ranks. Mr. Hewitt wrote:

"That a boy born in humble life, with no advantages of education or opportunities for position, without influential friends or the favoring accidents of fortune, should be able to advance steadily in usefulness, power and the respect of his fellow men, until by common consent he occupies the first place in the domain of practical industry with which he has been connected, gives conclusive evidence that political institutions which afford free play to individual ambition, industry, ability and strict integrity are worthy of all loyalty and should be cherished and preserved at all costs and hazards.

"The developments of the twentieth century show that these institutions are in great peril. Their essence is to be found in individual liberty, involving the right of free labor and the acquisition of private property under lawful conditions. When the right of free action shall be suppressed the possibility of a career like that of John Fritz will be destroyed. Collectivism, ending in Socialism, may afford other advantages, but let it not be overlooked that these advantages will be obtained only by the sacrifice of personal freedom, and will arrest the progress of civilization, due, during the ages that have passed, to the substitution of freedom for force.

"John Fritz is a living proof of the results of individual and industrial liberty in a country endowed with boundless resources. In vain shall we seek for a like career in nations or in countries where the individual initiative has been suppressed. The stagnation of China, whose men are physically strong and whose resources are abundant, is in marked contrast with our own land, where heretofore every citizen has been free to employ his labor and his energies in his own way, so long as the rights of others were respected.

"John Fritz, therefore, is to us more than a man whom we love and respect, more than a friend to whom we wish many years of health and happiness: he is an example of the free spirit of American institutions, a beacon light warning the present and coming generations against permitting any invasion of the principle of the liberty of the citizen, which alone has made our beloved country great and free."

VI

Finally, the grave fear that a conservative part of the community felt lest President Roosevelt had put the dignity of his great office in peril by having to do with the coal strike, and on the other hand the practically universal applause of the persistence and of the practical patriotism that caused him to succeed—these feelings have even more deeply stirred the people than the coal strike itself did; for it was made obvious that a labor union and a small group of employers may hold the public in their grip as it had perhaps never been obvious before even during our most violent labor troubles. Here was a deadlock which had defied every influence but the personal effort of an energetic President of the United States; and he could break it only by what many regarded as a most strenuous and even dangerous use of his personal power as President.

There were three scenes in the adjustment of the coal strike that the public will not soon forget. The first was the straightforward and earnest appeal that President Roosevelt made to the operators and to the strikers to agree to arbitrate, and the almost insulting conduct of the operators. Some of the operators, indeed, showed a self-righteous pig-headedness that was enough to turn a right contention into a wrong one.

The next scene was the visit of the greater captain of industry, Mr. J. Pierpont Morgan, to the President, when in five minutes the President's request of the operators was agreed to.

The third scene was at the convention of the miners where the plan for arbitration was accepted. Men who were sure of reinstatement at the mines volunteered to give their places to others who might be debarred. A spirit of loyalty to their organization and to their leaders was shown that was admirable and true; and the meeting broke up singing patriotic songs. They had stood together for nearly half a year for what they regarded as a right contention—unselfishly, for it could at best bring any one of them little profit; and that is no small thing for any group of men to do. Out of such a spirit great achievements can come under able counsel and wise leadership.

All these things and more like them have put the whole people in a most serious mood regarding the rights, the duties and the dangers of labor organizations. In the uncertainties that beset the subject two things are plain:

Labor unions have come to stay. They will grow rather than diminish.

They call for the wisest guidance if they are really to build up the American workingman and not to destroy the great characteristic of

American citizenship while they are struggling merely to gain the strength of compact organization. Every great movement in a democracy must be tested at last by its influence on the individual. The care of classes is the business of older and less efficient social systems. The normal nurture and the free development of the individual is the mark of a democracy.

There is no more urgent demand for wise leadership in the world than the demand for wise leadership of organized American labor today.

THE PROBABLE PROGRAMME FOR TRUST REGULATION

IT is probable that the long and varied discussion of trusts will bear fruit in a definite effort at legislation during the short session of Congress; and the effort most likely to succeed will be in the general line of Attorney-General Knox's plan which he explained in his address to the Pittsburg Chamber of Commerce. This plan proceeds on the assumption that (without an amendment to the Constitution) Congress has power so to supplement the Sherman anti-trust law as to compel publicity and to prevent monopoly.

When the Sherman law was passed in 1890 it was supposed that it would give the Federal Government power, through its regulation of interstate commerce, to prevent the existence of trusts that monopolize articles of general consumption. But the Supreme Court by its interpretation of the law made it almost useless. It does not enable the Federal Government to interfere with a trust because it is a monopoly, but only with a trust that shall seek to monopolize or restrain interstate commerce—which is a very different thing. Attorney-General Knox declared that

"If the Sherman Act exhausts the power of Congress over monopolies, the American people find themselves hopelessly impotent, facing a situation fraught with the most alarming possibilities, with which neither the Federal nor State governments can deal."

But with the Sherman law so amended and extended as to give the Federal Government, through its regulation of foreign and interstate commerce, some real control over trusts that strive for a monopoly of production, all additional necessary power resides in the common law, and by the common law the courts can decide each case on its own merits —whether it really be in restraint of trade.

This plan is simple—at least, as simple as so complex a matter seems likely to be made. It calls for a single act of Congress which shall give the Federal Government the power that the Sherman law at the time of its enactment was supposed to give it. Then the common law will do the rest.

Such a programme does not exclude the reduction of duties on trust-made articles, which commends itself to many thoughtful men, but which is promiscuously punitive and would not touch the larger task of scientific regulation. It is well to remember the closing words of Mr. Knox's comprehensive address, which is the best piece of literature provoked by the whole summer's discussion:

"The conditions of our commercial life are the result in part of an evolution of forces of world-wide operation. They have developed gradually and are not, perhaps, fully understood. Laws regulating and controlling their operation, before they ripen into a complete system of wise jurisprudence, will be of gradual growth."

In other words, he who has in hand a complete or automatic remedy is a quack.

THE PEACE ARMY AND ITS FUTURE COMMANDER

THE promotion, which has been semi-officially announced, of Major-General S. B. M. Young to be lieutenant-general, to succeed Lieutenant-General Miles, who will reach the age of retirement next August, will put the command of the army into the hands of a soldier who has won every step in his military career from the ranks of the volunteer service, which he entered at the beginning of the Civil War. He became a captain of cavalry as early as 1861, and he took part, in spite of successive wounds, in most of the cavalry operations of the Army of the Potomac. He was brevetted brigadier-general of volunteers; but, when he was mustered out in 1865, he began military service again—this time, of course, as a regular with the rank of second-lieutenant. He was colonel of the Third United States Cavalry when the war with Spain was begun, and since then he has risen to his present rank. He saw service both in Cuba and in the Philippines, and he is now President of the War College.

The position of lieutenant-general in time of peace is not spectacular, but it is important if the right man holds it. General Young is in the heartiest agreement with the President and Secretary Root concerning the

reorganization of the army and the efficient organization of the peace force. The army is now, by the way, for the first time since 1898, on a peace footing. The number of officers and men is little less than 60,000—as nearly a "skeleton" as the army of so large a country can be and keep a really good organization.

It was only the other day—it is difficult now to recall it—that certain frightened persons of prominence were sure that we were committing ourselves to the maintenance of a permanently great army; that the rampant spirit of "militarism" had made peace seem abnormal; and that we should find fighting so pleasant (the savage blood running red even in our children) as to seek new lands to conquer, till Asia were laid waste and the Southern Cape acknowledged the Stars and Stripes; for to such dread "imperialism" were we drifting that there was no retreat, since we had tasted Spanish blood and grown remorselessly fond of Filipino slaughter! How gently a little time and silence bring us to ourselves after a nightmare of feverish criticism.

PREPARING FOR TWO GREAT PUBLIC WORKS

ENERGETIC preparatory labor has been done looking toward the beginning of two great public works authorized by Congress at its last session—the isthmian canal and government irrigation of our arid region. The Canal Act empowered the President to buy the rights, franchises, property, etc., of the French Panama Canal Company if they could be bought for $40,000,000 and if the titles were clear. Attorney-General Knox himself went to Paris to examine the titles, and he has reported to the President his opinion and the opinion of the other counsel of the United States that they are clear and that the Panama Company has the right to sell all its interests on the isthmus. In the meantime the Colombian Government has threatened some delay in completing the negotiations; but it is not thought that any insuperable trouble will arise in that quarter. It has been given out that Rear-Admiral Walker will be appointed chairman of the commission that will have the completion of the canal in hand, and it is expected that the negotiations with the French company and with the Colombian Government will soon be concluded and that work will be begun during the present administration—an event large enough to give historic distinction to any presidency.

Seven available sites for government irrigation reservoirs in Montana, Colorado, Arizona and Nevada have been reported to the Secretary of the Interior by Mr. Newell, the chief hydrographer of the Geological Survey. Thus preliminary work has been done also for this great undertaking.

A MODEL CHARTER AND A DEBAUCHED CITY

WHEN the present charter of St. Louis was framed in 1876, it was regarded by students of municipal administration as a model. Many of them declared that if the plan that it illustrated should be generally adopted we should soon be free of the reproach of bad municipal government. The State constitution of Missouri separated the city of St. Louis from St. Louis County, and gave the city, in addition to its municipal powers, the authority invested in the counties of the rest of the State. The city charter proceeded upon the theory that the great centres of population have conditions and needs unknown in the sparsely settled regions, and that the persons directly affected by these needs and conditions should have the sole power to legislate concerning them. Thus the city secured—not as a concession wrung or coaxed from the State government, but as a right—somewhat the same powers and independence in its own sphere with respect to the State government that the States have with respect to the federal authority.

This theory of municipal independence was not new, but it received a much broader application in this charter than had previously been given to it in any important city. St. Louis has had home rule to an extent not enjoyed by any other city in the United States. Its public officers were supposed to be nearer to the people than they were elsewhere. It was thought that provision was made to remedy inefficiency, to prevent extravagance and to detect and to punish wrongdoing. If any municipal system anywhere in the world could be relied on to work with some approach to automatic action, this system would.

But a government depends more upon the officials who administer it than upon those who frame it. The intelligent and respectable citizens of St. Louis came in

time to neglect their civic duties, to refuse to attend the primaries, and to permit incapable and corrupt men to get into office. The penalty is written large in the orgy of blackmail, bribery and robbery which has brought discredit and humiliation on the eve of a great international fair. There are virtues in good charters and in good systems; but there is no substitute in a democracy for personal civic activity. Whenever this cease general inefficiency begins and corruption follows. There is no short road nor chartered way to safety.

NEW CONTROVERSIES ABOUT COEDUCATION

COEDUCATION has come to be regarded in the Western State universities, where it has its principal home, as a natural educational system that has proved itself. But in many men's universities in the Eastern States it is yet looked upon as a Western experiment that must suffer many modifications, if not ultimate abolition. The discussion used to turn on the good or bad social influence, sometimes on young men, but oftener on young women, of such association of the sexes.

But now the controversy has been shifted to the influence of women on the quality of the intellectual work done in these universities. In some institutions they show a tendency to monopolize certain groups of studies, especially English literature; and the question is raised whether literature is essentially a feminine subject. One inference is (whether it be warranted or not) that many young men leave alone courses in English literature because the young women take them, regarding the subject as a girl's matter. A still more interesting question is this—is literature so taught as to appeal rather to the taste of girls than to the taste of boys?

But the most interesting subject of recent discussion in the coeducational universities is the rapid proportionate increase of young women in the academic departments. In 1900, as estimated by Prof. James Rowland Angell in *The Popular Science Monthly*, the number of women in the department of arts and sciences (not professional schools) at the University of California was 55 per cent. of all the students; at the University of Minnesota 53 per cent.; at Chicago University and at the University of Michigan 47 per cent. Leland Stanford University has limited the number of women that it will admit to 500, Chicago University no longer permits the two sexes together during the freshman and sophomore years, and there is discussion of similar limitations or of limitations in number elsewhere. This restriction recalls the expectation during the early days of coeducation that among the students men would always outnumber women. These institutions were once regarded as men's colleges to which women were admitted. The fear now is that some of them may come to be regarded as women's colleges to which men are admitted.

This tendency recalls the economic fact that played an important part in the establishment of the coeducational system. In many State universities women were at first admitted partly if not wholly because the State could not afford to establish two institutions of high grade. Economy had much to do with the movement. This economic fact still has force, but it has been forgotten by many who discuss the social and educational aspects of the system.

A CALL FOR GREATLY INCREASED SCHOOL EXPENDITURE.

THE public school system of the United States deserves the credit that has been given to it, even perhaps the rhetorical praise by its patriotic eulogists, which, however, is sometimes a tiresome flow of words. Statistics (which can never tell much worth knowing about such a subject as education) betray us because they present such large totals of achievement that the individual child is hardly visible; and the work done on the individual child is the only test of the whole matter.

But, remarkable as the development of the system has been in many of our commonwealths, it lags far behind our needs and opportunities. How far it lags President Eliot makes clear in his stimulating address that is published in this magazine. He points the way to greatly increased expenditure on the schools. It must be a revolutionary increase of expenditure if they are to do with excellence the task that is committed to them.

Public opinion in such a matter generally moves by impulses. We go forward with great speed; we reach a certain point in liberality and in achievement; and then we rest or turn to other tasks. The time is opportune

now while the flood of prosperity continues for another long, forward movement made both by communities and by individuals for the bringing of our public educational work to such a standard of excellence as no country in the world has yet reached. When the history of our great school system is truly written it will probably appear that our own time was a time of general acknowledgment of its necessity but of somewhat half-hearted support—that we had not made full proof of our faith by our public liberality. So long as there are from forty to sixty pupils to one teacher the individual child is partly forgotten or partly neglected, whatever impressive totals school reports may show. The extraordinary addresses that President Eliot has been delivering to associations of teachers in New England make the most stimulating literature of the subject that educational agitation has provided for a long time.

A MORAL REFORM IN THE INDUSTRIAL MAN

THE Society of Friends has invited the other Christian sects to send delegates to a national conference for the discussion of the liquor traffic which they propose to hold several years hence—a very proper and characteristic act. This call will remind the social reformer of a long succession of organized efforts in behalf of temperance. At one time societies were formed all over the country to promote total abstinence. In many States almost every village had its "lodge." At that time the temperance lecturer was almost as well recognized a person as the evangelist of other periods. The preaching of total abstinence became an organized industry. It had its well-patronized press, and at least one publishing house laid the foundations of its career by the issue of temperance periodicals and books.

Then came the era of prohibition laws. Many States passed such acts, and the Prohibition party became a power in politics. Following this form of agitation came the effort to introduce into the public schools the study of the effect of alcohol on the body; and it was only a few years ago that the Committee of One Hundred, men of wealth and men of sociological zeal, conducted an investigation into the drink evil—the legislative efforts that have been made to suppress it, the results of open barrooms and of high license in cities, the physiological results of drink, etc.; and the publications of this committee form the best practical literature of the subject. It has been a long and earnest and many-sided agitation.

A great change has taken place in American habits during the last generation or two. Drunkenness has not been stopped—far from it; but it has lost the toleration that it once had. There was a time within the memory of men yet in middle life when in many parts of the country it was considered a pardonable weakness provided it were not too often yielded to. Now it is regarded as a disease—often as a criminal disease. Its victims everywhere lose social standing.

And the strongest force of all is what may be called the industrial condemnation of drunkenness. No man who gets drunk can now expect to hold a place of trust, whether in professional or commercial or mechanical life. A bank will not have a drunken president, nor a railroad a drunken brakeman. A man who drinks loses his job: this has become a well-nigh universal rule in working life of all grades.

The eradication of drunkenness has by no means been accomplished. Nor is it even in sight. There is work enough for the Friends, in their gentle and persuasive way, and for all other sects and classes of self-restrained men. But the strongest influence that has made for the temperate indulgence in liquor has been the social influence of industrial life—the demand that every man who counts for anything in a democratic society must be efficient. This great moral reform must be accredited chiefly to industry.

THE STANDSTILL OF WOMAN SUFFRAGE

THE death of Mrs. Elizabeth Cady Stanton at a ripe age (and she was in many ways a remarkable woman) recalls the slow progress that the cause of woman suffrage has made during the comparatively long period of agitation for it. It has had the championship of many influential men as well as of such remarkable women as Lucy Stone and Elizabeth Cady Stanton. Of course, too, it has drawn to it, and suffered from, the favor of many shrieking, unattractive "reformers," as every radical proposition does. Four Western States have granted the ballot to women, but the experiment has not yet convinced other States of the wisdom of doing so. In many communities they vote at school elec-

tions and for certain other local purposes. There has been a considerable and proper change also, as a side result of the agitation, in the laws of many States regarding the property rights of women. But the main aim of the suffragists has for a good many years made little headway, and the probability of their further success seems as remote as ever.

ACCIDENTS ON AMERICAN RAILROADS.

FOR the year ending June 30, 1902, 303 passengers were killed on American railroads and 6,089 injured—a very decided increase over preceding years, for the figures of 1901 show but 282 killed and 4,988 injured, and those of 1900 but 249 killed and 4,128 injured. This shows that the number of passengers has increased and traveling conditions have not become less dangerous.

The diminution of one kind of accident to employees is cheering, for the means whereby this accident rate was lowered points the way to securing greater safety. In 1902 2,819 railroad employees were killed and 38,900 injured, as against 2,957 and 46,130 in 1901 and 2,799 and 43,771 in 1900. These totals are deceptive, since certain classes of employees included in the earlier years do not appear in last year's figures. Probably, as with the passenger lists, just as many employees are killed or maimed now as formerly, with one notable exception.

The Interstate Commerce Commission reports that 68 per cent. fewer brakemen are killed and 81 per cent. fewer injured in coupling cars now than in 1893; and they ascribe the improvement to the Safety-Appliance Act of 1893 requiring automatic couplers. In other words, the single significant gain in safety came through legislation. Rigid laws are the best guarantee against railroad accidents.

THE RESTORATION OF THE WHITE HOUSE

THE White House is to be restored, and a part of the work has been done. The amazing fact is, the original plan of it had been forgotten and to an extent defaced and changed. The house had so been put to utilitarian uses for a century that its real nobility of plan had been forgotten, and at last utility had defeated itself, for it was not large enough. There was not room for many proper functions; at great receptions guests were indecently crowded, and there was not even enough living room for a large presidential family. Everybody who has had occasion to go to the White House must have felt, too, the insufficiency and even the indignity of the President's offices and of the hall outside, where there was always a group of newspaper reporters. The whole scene reminded one of the ante-room of a court-house in a second-rate country town.

The front of the White House is not the side facing on Pennsylvania Avenue, which has been used as the approach to it, but the side facing the river. The public has always used the back door. The distinguishing features of the architecture are the two long terraces, one of which had been put to no use at all and the other concealed by conservatories. These are noble and impressive parts of the original plan and give dignity to the whole structure when seen from the river side. The proper public entrance is on the east side (next the Treasury Department) through the east terrace. At the end of the west terrace the new executive offices have been built.

Mr. McKim, the architect who has restored the plan of Hoban, the original architect, has done another national service by making the White House as it was meant to be. The interior furnishings, too, are in keeping with the period when the house was built.

OUR WASTE OF OLD WORLD HANDICRAFTS

MANY interesting things which Americans go abroad to see could be had in any of our large cities if we would but encourage the immigrants who come to our shores to preserve the best of their old-country life." So recently spoke Miss Jane Addams, of Chicago, and she spoke with knowledge. The remark is suggestive. Immigrants are made to feel by our treatment of them and by their surroundings that their old life must be cast aside. The elders among them often feel regret at the swiftness with which the children become ashamed of their native ways and dress, and even of their parents themselves. This rapid Americanization in many cases means the abandonment of their handicrafts. Miss Addams told the story of an Italian in Chicago who, missing the art of his own land, carved the doorpost of his rented apartments and decorated his ceiling with stucco; and he was fined by his landlord for disfiguring the property! There are said to be many immigrant workmen who have

never let their skill be known because they think that they must literally begin life anew in America. Woodworkers, metal-workers, potters and many other skilled craftsmen sometimes discard their native industries as they discard their native speech.

We came near to permitting (for we long ignorantly encouraged) the Indians to lose their native handicrafts, as basket-making and blanket-weaving; and the same sort of carelessness loses to us, no doubt, many of the useful occupations of the European peasantry. We might import them all; we do import them all and fail to encourage them. Then we go to Europe and pay high prices for objects that might be made in our own cities by the natives of all the lands that we ransack. Our country ought to be the home of as many handicrafts as it is of different peoples.

POSTAL STORIES OF GROWTH AND PROSPERITY

ONE of the most interesting evidences of our continued prosperity is the enormous increase of 20 per cent. in the postal business of the fifty largest post-offices in the United States. This increase implies chiefly the development of commercial correspondence and other commercial uses of the mails. It means a large increase in the volume of printed matter, too. These fifty post-offices yield one-half of the whole postal revenue.

But it is not only a story of commercial prosperity that may be read in postal statistics. The increasing density of population is indicated by the rise in the number of post-offices—from 64,000 to 76,000 in ten years, or more than a thousand a year. Within the same period the number of postage stamps annually sold increased nearly two billions—that is, say, it was very nearly doubled. Hardly less important than the commercial story told by the growth of the business of large post-offices is the meaning of the development of rural delivery systems. There are now 8,500 routes and there are petitions for 10,000 more.

THE EASTWARD AND WESTWARD SPREAD OF CHOLERA

ONE of the great sanitary tasks of civilization was done when, during the American occupation of Cuba, yellow fever was stamped out at Havana. Another and greater task of a similar kind is to rid the world of cholera. In its Asiatic breeding-ground it always exists, and at intervals it spreads eastward and westward and again retreats. But it never dies out. It has made visits to other continents in recent times once in about twelve years, and it is now by this calendar nearly due again in Europe or America.

It was reported on November 1st that more than 75,000 cases had occurred this year in the Philippine Islands, which are now (as such a disease travels) dangerously near to us. The mortality has been as high as 75 per cent. of the cases, and in some otwns and provinces the population has been decimated. But it is now fast disappearing, and there are no cases in most of the provinces. But in China the disease has been playing havoc —at Nanking, where 40,000 persons had died before November 1st, at Hong Kong and at Peking. It is making its way westward, too; for it has this year caused tens of thousands of deaths in Egypt.

COLOMBIA AND VENEZUELA IN CONVULSION

CIVIL war still wages in Venezuela and Colombia, and no one can yet safely predict the outcome in either country. Old men are still living who remember the great liberator, Simon Bolivar, and since his day Venezuela has seen 104 revolutions, her longest period of comparative calm having been from 1870 to 1889, when Guzman Blanco was dictator and governed the country, either directly as President himself or through puppet presidents whom he named.

As he rode into power at the head of a revolution, so did the present President, Cipriano Castro. A revolution broke out in February, 1899; it was suppressed and a provisional government was formed under Castro in September, 1899. In the revolution which began soon afterward the so-called Liberals of Venezuela under Castro espoused the cause of the Liberal rebels in Colombia, and Colombian troops violated Venezuelan territory. When the Colombian minister left Caracas in August, 1891, the United States offered to mediate between the two countries, but Venezuela declined, and later rejected a similar offer from the Pan-American Congress at the City of Mexico and from Chile. At present mediation is not of vital importance, as the civil strife in each country is all-

engrossing, and neither has a government sufficiently stable to encourage a mediator to deal with it. It is not improbable, too, that when internal quiet shall have been restored international irritation will disappear.

The revolution in Colombia has been of a more devastating character than that in Venezuela and is of more interest to the United States. The whole country is being laid waste; the people are becoming poorer and poorer; the government is hopelessly bankrupt. The output of worthless paper is so large that it cannot be correctly calculated. The revolution has continued unremittingly for three years, having started in the autumn of 1899. It followed a long period of oppression under Dr. Rafael Nuñez, who came into power as a Liberal in 1884, but promptly turned Conservative, and by force, fraud and corruption held the country in his grip until his death in 1895. The revolt is against his feebler successors and imitators.

Toward Colombia the United States sustains a peculiar obligation. In 1848, when James Buchanan was Secretary of State, before a railroad was built across the Isthmus of Panama and when a canal was hardly dreamed of, the United States made a treaty with what was then New Granada and is now the republic of Colombia, guaranteeing the perfect neutrality of the isthmus from sea to sea, that transit should not be interrupted or embarrassed, and that Colombia's sovereignty should never be disturbed. In 1855 the railroad was built, and whatever turn the troubled affairs of Colombia may take, this road and the land through which it runs must be kept open by the United States. To protect it marines have landed on several occasions, and in November of last year Commander McCrea of the *Machias* ordered the revolutionists not to bombard Colon, the eastern terminus, while at the present time Admiral Casey guards the strip with a formidable fleet, and permits troops to use the railroad only when there is no danger of conflict.

When the present revolutions shall cease in Venezuela and Colombia, if the revolutionists win, governments will be reorganized on a liberal basis. After a time the leaders will endeavor to entrench themselves in power by the familiar methods, and new revolutions will follow. If, on the other hand, the revolutionists are crushed they will watch for an opportunity to revolt again. This, unfortunately, is the history of government in the southern republics, and tranquillity seems to come only with a dictator, who is nominally a president, in control. It is fortunate when he is bold and progressive, as in the case of Porfirio Diaz of Mexico, and unfortunate when he is both corrupt and reactionary, as was the case with Rafael Nuñez of Colombia.

THE LESSONS OF THE SAMOAN AWARD

THE influence that the Hague Arbitration Tribunal has had, by reason of its decision of the Pious Fund case, has been out of all proportion to the importance of the case itself. The fact that two governments so soon submitted a controversy to it, and that it reached a decision in a reasonable time and in a reasonable and businesslike way, is a convincing demonstration of its utility. It has proved that it is a practical piece of machinery. The press and the public opinion of the whole civilized world now regard it seriously and hopefully; and there is talk at more than one European capital of submitting even more important cases to it.

A striking proof of the probable utility of the tribunal is given, by contrast, by the decision of the King of Sweden as arbitrator of the Samoan dispute. The United States, England and Germany submitted this case to King Oscar. He has handed down the decision in the controversy about damages done by men-of-war to Samoan property in favor of Germany and against the United States and Great Britain. The decision is of course accepted cheerfully by all the parties to the contention; but the method of selecting one person as an arbitrator, in comparison with the method of the Hague Tribunal, already seems antiquated. The King of Sweden has other duties. He undertook this arbitration as a favor to friendly nations. He chose his own advisers. The whole method is unscientific and it seems likely now to become obsolete.

The Samoan case has almost gone out of the public mind. Its details are hardly worth recalling here—except to remark that the triple guardianship of Samoan affairs by the United States, Great Britain and Germany proved a failure, as it is easy now to see that it must. Yet it was often cited by those who were opposed to the American occupation of the Philippine Islands as a method whereby

they might have been managed. Such a method would of course have failed—failed probably with tragic results.

THE SWARMING MILLIONS OF CHINA.

THE population of China has always been a subject of dispute by statisticians. The Chinese count has not been regarded as trustworthy, and the estimates of foreigners, however carefully made, were but guesses. But the recent enumeration that the Chinese Government has now published is accepted as at least better than any preceding count or estimate.

It shows the enormous total of 426,000,000 persons — a gain of 13,000,000 over the Chinese count made in 1842. Compared with the growth of our own population this is a very small increase. But epidemics and the lack of sanitary knowledge and wars and the crowding of the population greatly check the natural increase. Of course the provinces differ greatly in the density of population. Thibet, Mongolia, Turkestan and Manchuria are sparsely peopled; but in the great provinces, such as Shantung and Honan, every available foot of soil is used and occupied. There is a considerable area so densely populated as to warrant this comparison—if all the people in the United States proper lived in Texas, 40,000,000 more would have to go there before the population would be as dense as it is in this part of China.

Since Chinese immigration is forbidden by the United States and by Australia, these swarming millions have no outlet that they know how, or are disposed, to take; and the problem of lifting life higher in such a hive, or of radically changing it, will be solved, if it be solved at all, by the railroad. Easy and cheap transportation may in time change the conditions of life there; but no other influence that we now know seems likely to do so.

THE DEATH OF MR. FRANK NORRIS

THE death of Mr. Frank Norris, which occurred on October 25th, in San Francisco, at the age of thirty-two, was a definite and serious loss to American literature. The work that he had already done was considerable and important; for the two books that he finished of the great trilogy of novels that he had planned are original and vigorous contributions to the best class of our fiction. Other writers, some by choosing historical and some by choosing social subjects, have interpreted various phases of American life; but he had a larger conception of it—a conception that included its vast economic significance—perhaps than any other writer of fiction. He stood firmly, too, at a time of sensational "successes" in fiction, to his artistic convictions. Many a writer of real ability has been dazzled and has suffered a change of ideals because of the financial success of cheap work; but he held true with an heroic persistence to the best that was in him. He knew that he could write a swashbuckling romance, and he was ambitious for success and he was eager, too, for the financial rewards of his work. He could at any time have made a much larger income by writing sensational books, but he worked on, year after year, unswerving and content with the nobler aim.

After practising his art in his earlier stories, which all showed originality, and after outgrowing certain obvious faults that marked his youthful works, he had, while still young, found a great subject. The strong grasp of his imagination and his mastery of his art were just beginning to show themselves. Here was a man, then, who, having done most noteworthy and, we think, lasting work in his youth, died just as he was reaching the easy command of his powers. The pity of it comes keenly to those who look out over American literature now in the making and see so little genuinely original work.

To those who knew Mr. Norris, his death brings a deeper loss than the premature close of a brilliant literary career. He was a strong and lovely personality. His youthful and beautiful face, crowned with gray hair, wore a smile for all his friends. He was associated with the publishers of this magazine from the beginning of their career as publishers of books; and he showed such a rare genius for friendship that to them the loss to literature is swallowed up in the loss of a friend and companion. He carried with him always an atmosphere of cheerful earnestness. He was a very noble man—strong and gentle and brave and true. The memory of him is so precious a possession to those who lived and worked with him that they will carry it as an uplifting influence all their lives long.

THE BONDS OF AMERICAN CORPORATIONS

[THE WORLD'S WORK publishes every month an article in which some timely and vital subject of the financial world is taken up]

SEVERAL years ago nearly all capitalization issues on the part of important corporations were in the form of stock. Since the summer of 1901 and continuing with increasing volume the tendency has been toward the issuance of bonds instead of shares of stock. It is a tendency all the incidences of which cannot be felt in a period of great financial exaltation such as the present. But the tendency is a most significant one.

That the extent of this tendency may be realized it should be noted that during the current year scarcely an important issue of capital stock has been announced, with the exception of $35,000,000 by the New York Central Railroad. This issue is explained upon grounds peculiar to this railroad, primarily the fact that assurances were at hand that much the greater part of this stock would be subscribed by the present controlling interests in the property. Conspicuous among the large issues of new capital in the form of bonds is the case of the Brooklyn Rapid Transit Railroad, which announced its intention to borrow $150,000,000 on bonds. The Pennsylvania Railroad is to obtain money for the building of its tunnel into New York by the issue of $50,000,000 in bonds. This action of the Pennsylvania is particularly significant, for up to this time this railroad has relied on the issue of new stock for its capital, increasing the stock from $129,305,000 on January 1, 1898, to $203,272,100 on January 1, 1902. In addition there might be mentioned the following very large bond issues: Atchison Railroad, $30,000,000; Norfolk and Western Railroad, $20,000,000; American Telegraph and Telephone Company, $10,000,000; Mexican Central Railroad, $10,000,000; and the notable case of the United States Steel Corporation, which is now seeking to convert $200,000,000 of its seven per cent. cumulative preferred stock into five per cent. bonds and to issue $50,000,000 bonds in addition to provide necessary working capital. Further evidence of the pronounced tendency is found in the fact that in 1901 the New York Stock Exchange "listed" $923,010,100 in bonds against $443,713,000 for the previous year, while exclusive of the $1,018,000,000 of Steel stock listed, the stock listings for 1901 were only a few million dollars in excess of those for the previous year.

Many of these issues of bonds were determined by circumstances peculiar to the corporations concerned, but the general run of them were influenced by certain underlying conditions of the American securities market, and were also affected by disastrous experiences certain railroad interests had had in retaining the management of their properties. When Mr. J. Pierpont Morgan was on the witness stand last spring in a case involving the validity of the Northern Securities Company merger, he gave one explanation for the existence of that combination which has been oftentimes quoted in Wall Street since. "I wanted," said Mr. Morgan, "the stock of railroads I had helped to build up and make prosperous to be where I knew it was secure—where it could not be bought up over night. I felt that if a corporation with $400,000,000 capital stock held this stock, it would be safe there, if it would be safe anywhere in the world."

In this desire to have the control of properties in hands whose locality is not a matter for speculation, this anxiety to prevent the secret purchase of control of properties in the stock market—here is to be found one of the directing reasons for these new issues of bonds. For bonds confer no voting power upon their holders. Possessors of stock may elect a management. They are partners in the firm, so to speak. Bondholders are creditors. They can have no voice in the direction of the properties until the corporations shall have become bankrupt. If a corporation, therefore, issues ever so many millions of bonds, the management runs no risk of creating possibly hostile voting power. Managers of

many of the great corporations of this country have had occasion to shudder within these last few months at the assaults made upon them through quiet purchases of stock. The cases of the Louisville and Nashville Railroad and the Colorado Fuel and Iron Company are still vividly in the minds of the investing community.

This, then, is the predominant reason for the preference for bond issues over those of stocks. There are many, however, who feel that the investment public has absorbed about all the "stock" that it will. It is an extremely difficult matter at present to float a new issue of stock. Even the great Steel Corporation, backed and guaranteed by the powerful house of Morgan, with its enormous earnings and conservative management, and paying seven per cent. dividends upon its preferred stock, has not been able to induce the public to buy that stock at a figure much above $95 a share. With such a conspicuous warning, it was but natural that financiers should cast about for a more hopeful method of obtaining capital. It is freely predicted that should the Steel Corporation issue its $250,000,000 in bonds, those five per cent. promises to pay will command a higher market value than the seven per cent. cumulative stocks of the same company. The securities market has come to feel that there is some magic in the word "bond." It, at least, is sure. No matter how bad times may be, the bondholder will get something. The stockholder may suffer an absolute loss. Since the memorable panic of May 9, 1901, all the machinations and allurements of Wall Street have failed to attract a large public into stock market speculation. There have been various artificial bullish movements, but in every case they have been traced to pools held within narrow limits. Corporations have been made to realize that their capital issues could not be carried upon the crest of waves of wild, indiscriminate speculation. They have been made to feel that the only way to induce the public to allow its money to be used in their enterprises would be to give to that public some security.

It must be regarded, at the same time, as a most hopeful indication that the bonds of American corporations have come to have such an assured value. If they had not they could not be floated, in spite of the charm surrounding the word "bond." The public must be led to believe that there is a reasonable probability that the interest due on the bonds will be paid. If the public has confidence in this fact, it will willingly sacrifice a seven per cent. cumulative stock in the most prosperous of corporations for a five per cent. bond of the same institution. The public realizes that the corporation will thus save two per cent. in dividend payments, which may be utilized in improving the properties and making them more likely to continue five per cent. payments for a long period than could be the case with seven per cent.

But right here occurs the chief danger of this wholesale issue of bonds, in the opinion of thoughtful students of modern finance. A bond constitutes a fixed charge upon the earnings of the corporation. In times of prosperity, a heavy fixed charge is not felt to be burdensome. If business be depressed, however, the fixed charge becomes immediately a peril. No matter how much sales or profits may fall off, interest payments must continue to be made or the company go into a receiver's hands. Bonds floated, therefore, upon the basis of earnings in times of prosperity are liable to prove most disastrous when depression comes. No issues of securities which have not passed through a period of depression can be viewed with absolute confidence by the investment world. The establishment of rates of interest, the fixing consequently of the exactly proper sums in which issues of bonds should be made to give the corporation permanent safety, constitute one of the most difficult problems with which corporation managers have to deal.

Conservative investors have begun to inquire just what possibilities of "watering" there are in bond issues. When the general public is so kindly disposed toward a bond, there is an extraordinary temptation to capitalize earnings, as well as properties, in this form. The form has so far been, in most cases, utilized by corporations of established conservatism and reliability. But even as late as October a prominent trust company in New York announced that it had agreed to accept the property, franchises, patents, etc., of a newly established telephone company, in return for which it would guarantee the issue of $100,000,000 in bonds, to be sold as needed. This transaction was no doubt entirely wise. It illustrates, however, the striking character of this tendency.

THE BUILDER OF THE NEW YORK SUBWAY

A STORY OF STEADY ACHIEVEMENT SHOWING THE QUALITIES BY WHICH MR. JOHN B. McDONALD BECAME CONTRACTOR FOR THE LARGEST MUNICIPAL ENTERPRISES IN THE WORLD

BY

RAYMOND STEVENS

THE day shift of workmen on the New York Subway had hardly begun their morning work on a section far uptown when an automobile whirled up to the edge of the trench and a short, broad-shouldered man, brisk and businesslike, alighted.

"J. B.'s late this morning," said a workman, as the visitor, stepping quickly down a ladder, started with alacrity along the tunnel, his keen gray eye glancing sharply here and there with critical gleam.

The rhythm of the workmen grew speedier as the new arrival went by. Foremen listened deferentially to his quick, decisive comments. The man was John B. McDonald, contractor with the City of New York for the 2,000,000,000-gallon Jerome Park Reservoir, one of the largest storage reservoirs in the world, the Rapid Transit Subway, the largest contract ever let, and, with his company, for the subway tunnel to Brooklyn—three contracts that amount to nearly $50,000,000; and early as it was, not half-past seven, he was later than usual on his daily tour of inspection. To a puzzled competitor who once exclaimed "How does McDonald make his success?" another, wiser, replied: "He gets up early in the morning."

The northeastern section of the country is dotted with engineering works built by him—railroads, bridges and tunnels from Georgian Bay to Maryland; and the contracts have gone to him and have been successfully completed because in every case he has known to a hair beforehand just what the tasks would call for. The magnitude of the task involved in building the New York Subway appals an observer who, visiting the mine 100 feet deep at 181st Street, thinks of the tunnel already begun at Post-Office Square and the miles upon miles of torn-up streets between—all part of a single colossal undertaking carried on by a single man. But when Mr. McDonald undertook the problem and some one said "Difficult job!" he replied:

"Difficult? Not a bit. It's cellar digging—just a lot of cellar digging. Put all the cellars in New York in a row and they'd make a tunnel from here to Philadelphia. There's nothing hard about digging a cellar, and a row of cellars isn't any harder. It takes longer—that's all."

This power of simplification—this refusal to be worried by details—is the quality that has enabled Mr. McDonald to accomplish large tasks in engineering work when his preparedness has secured them.

At his office he is the same alert captain of men as within sound of the chugging of air-drills and the noise of labor underground. From his morning inspection of the Subway, now one section, now another, or a half-dozen others, he hurries downtown—he always hurries—and, entering the Park Row Building just across from the City Hall end of the Subway, is carried up twenty-six stories to his offices. The building is the tallest in the world—in New York all things are superlative—and his office floor is just beneath the roof. From his office windows, as far as eye can see, straight north, run the canyon-like streets of Manhattan, and in the middle is the scar of the Subway. It is there all day before his windows—an object lesson in achievement—a thing to dream over. But dreaming about it is not for him. He turns to his pile of carefully sorted letters, plunging vigorously back to the work that is constant stimulation to him.

Engineers' reports, blue prints showing the condition of every foot of the Subway, sub-contractors with statements of work done and claims for payment, drafts for contracts,

plans for variations, conferences with the Rapid Transit engineers, bills for all kinds of expense, come in quick succession. With a thorough knowledge gained by years devoted to similar work, quick, decisive, quiet, he gets through the vast amount of work with less time and trouble than many men put into trivialities.

Mr. McDonald was born in Ireland in 1844 and was brought, when three years old, to New York, where his father had already located. At the age of eighteen he left the public schools to go to work—first in the office of the Registry of Deeds, for he had no idea of what he wished to become. He must be something, however, "something worth while," he declared to himself; and night after night he studied practical subjects in the evening high school.

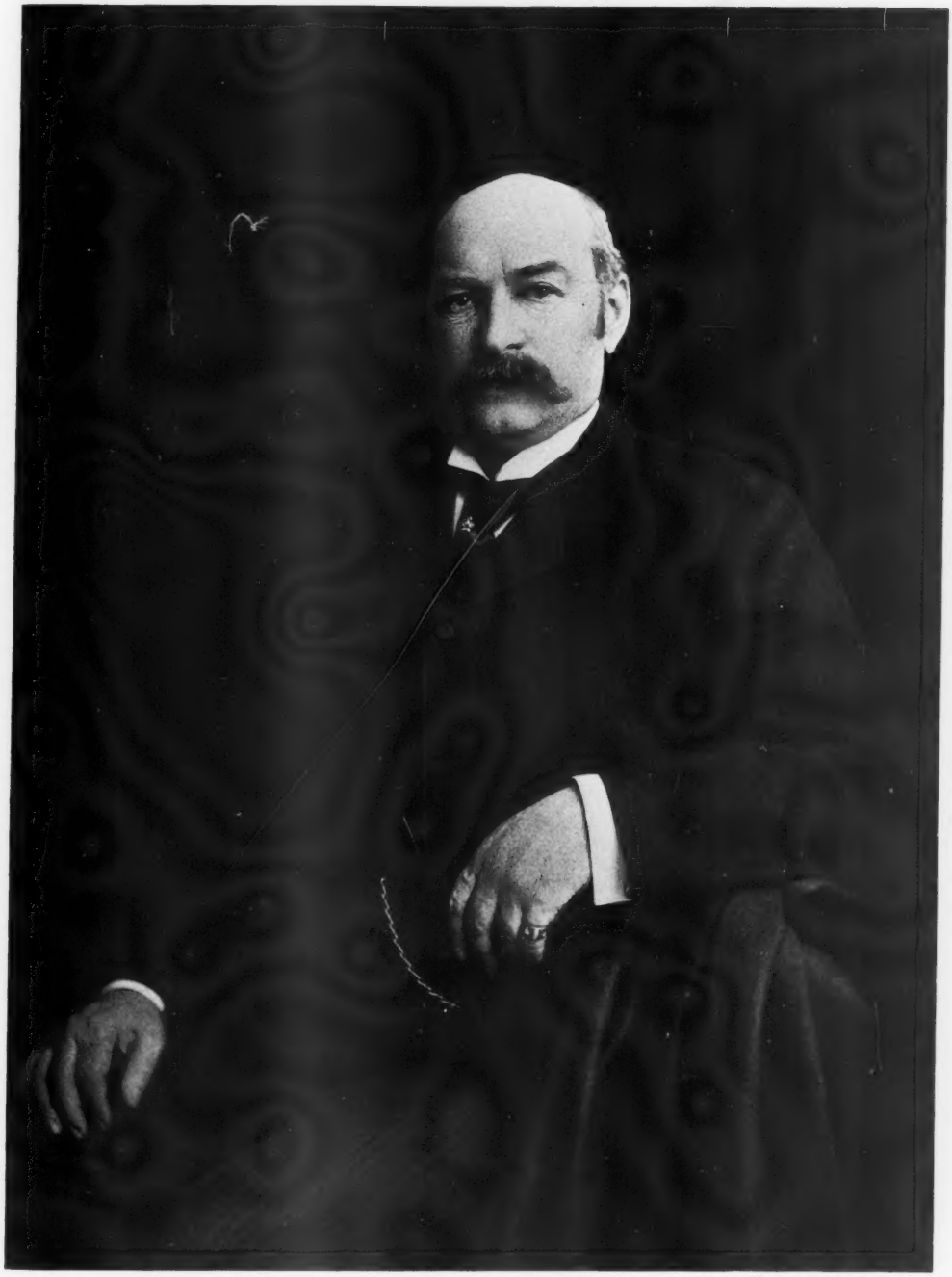
"I want some real work," he told his father when he had copied deeds for a year. And when this real work took the form of time-keeping on the Boyd's Dam contract, a part of the Croton Water system, he discovered his vocation. Speedily made foreman, he soon showed ability to handle men, but all the time he was on business of his own—learning the details of contracting and constructing—for his time was coming. Four years he served, and then, on recommendation of the Chief Engineer, who had watched his work, he became Inspector of Masonry on the New York Central tunnel. The contractors were subletting sections. The young McDonald studied one of them with care. "I can do it myself," he confidently thought.

He put in a bid. It was accepted. The work was done—and well done. Now, as he passes through the tunnel, he sees, supporting the roadway at Ninety-sixth Street, "The Big Arch," his first business venture. The contractors, liking the work, gave him other contracts—on the Boston & Hoosac Tunnel Railroad, the Georgian Bay branch of the Canadian Pacific, and the extension of the Lackawanna from Binghamton to Buffalo.

By this time his experience had widened until no construction problem balked him. He was reaching his full business stature. Wherever in the northeastern part of the United States great works or new railroads were building there were gangs of his men—on the West Shore Railroad, the Potomac Valley, the extension of the Illinois Central from Elgin, Illinois, to Dodgeville, Wisconsin, the Trenton "cut off" on the Pennsylvania, the Akron Junction in Ohio, the extension of the Baltimore & Ohio from Baltimore to Philadelphia, and others.

But these were ordinary tasks. They did not show that the young contractor had unusual ability. He could capably carry plans through, but had he any of that capacity that makes captains of industry?

He was living in Baltimore, to be near his railroad work. The city's transportation facilities were wretched. The Baltimore & Ohio Railroad, unable to get a franchise for tracks through the city on grade, was ferrying its trains completely around the city to make connections with Philadelphia. Tunneling had been put aside. Baltimore stands on low gravel hills under which run countless little streams, perhaps the most difficult of soils to tunnel. The problem came to his attention. He thought it over; he computed; he estimated; and in the end he prepared a plan for a tunnel. He convinced the railroad officials that he could build one. Public opinion said an attempt to build a tunnel under Baltimore would endanger property, would imperil life, and would come to naught—the task was utterly impossible. But a franchise was obtained and the work was begun. Difficulties arose. The soil proved so full of water that buckets had to be used in excavating. Quicksands were encountered. A subterranean stream burst through the tunnel wall one day, and laden with fine white sand, flooded out the workmen, swamped the works and stopped operations. But one after another the bucketfuls of mud came out; the quicksands were pumped dry, built on and passed; the subterranean stream, led to a brick conduit beneath the tunnel, was diverted to the harbor; and the tunnel bored on. When streets settled Mr. McDonald, with his usual foresight, had material and workmen ready, and the streets were filled in and repaved. Day after day with a rubber coat and hip boots he went down into the tunnel to direct the work himself. For five years the struggle continued. Any visitor to Baltimore knows the outcome. The Baltimore Belt Railroad, as the tunnel is called, is one of the hardest bits of tunnel construction ever successfully accomplished. It is the work of one man. Then, as if one such task were not enough, he submitted a bid for the Jerome Park Reservoir in New York City and secured the contract. Besides all this, he is head of a company that



Photographed by E. Rockwood

JOHN B. McDONALD

WHO IS BUILDING THE NEW YORK SUBWAYS AND RESERVOIR

owns a manganese mine in Central America that is shipping ore to the United States Steel Corporation.

But Mr. McDonald's great work is the subway. For years he has taken a special interest in the rapid transit situation in New York. Realizing that an extensive subway system was certain to come, he had long had an ambition to build it. He was a bidder on the so-called "arcade" subway plan of the 70's; indeed, he lost much of the property he had so arduously acquired when the plan eventually fell through. But that had not discouraged him. As an expert he was frequently summoned before the Rapid Transit Commission for his advice. The present plan called for bids on a comprehensive task—a contract not only to build the subway but to equip it with a transportation system and run the system for fifty years, paying back to the city the first cost of building. While there were dozens of contracting firms eager to do part of the work, only two submitted bids for the whole. Mr. McDonald, after spending a month at his Jerome Park office figuring on the estimates, put in the lower bid by nearly $5,000,000. The city required cash, securities and bonds to the amount of $7,000,000 to bind the contract. On account of disagreements with the surety companies as to terms, Mr. McDonald asked for an extension of the time for qualifying. Immediately there was talk that no one would back him because his bid was so low as to exclude profit. The other bidder was asked if he expected to get the contract through default. He replied:

"No, sir. John McDonald has got that contract and he'll keep it. He is the right man to do it. Security won't be lacking. Don't you worry about that."

Mr. McDonald had intended originally to build the subway alone, but feeling that the terms demanded by the security companies were exorbitant, he interested other capitalists, among them Mr. August Belmont. He convinced them that he had a profitable contract; and a corporation, with $6,000,000 capital and with Mr. Belmont as president, known as the Rapid Transit Construction Company, was formed to finance the undertaking. The construction has been pushed so rapidly and so successfully that the subway will be open to the public ten months before the contract time.

Throughout his career Mr. McDonald ha had the faculty of finding competent men t assist him and of interesting conservativ capitalists in his projects, for his is a person ality that begets confidence. He has ha equal success in dealing with labor. He ha had but a single serious strike in all his expe rience. That occurred on the Jerome Par work. One forenoon in May, while the work was going on serenely as usual, a few Italian at the dump ground, apparently without preconceived plan and without any notice save a shout to the surprised foreman, "We strike," stopped work and started for the reservoir two miles away. There they were joined by a thousand more. Greatly excited, shouting, waving their shovels, accompanied by many of their women and children, who lived near by, they rushed toward the office. Mr. McDonald stepped out. He saw moving toward him an excited mob evidently bent on violence.

"What do you want?" he demanded, advancing to meet them.

"We strike—more pay," came the cry, mixed with shouts and threats in Italian.

"Strike? If this is the way you strike, you can keep on striking. Get out!"

A moment's pause, another step toward them—"Come, get out," and the mob melted away.

Fearing that the excited men, with so much dynamite accessible, might do serious damage to the works, he went for a body of police to drive them from the reservoir. Within a week the men returned unsuccessful. Mr. McDonald's method in the case of any grievances has always been to call the men to his office and settle the matter man to man, or, when the laborers have been organized, to treat with the union's agents; but he is not the man to be driven or frightened. Said an engineer who had long been connected with him: "He has had little trouble because the men get anything reasonable they demand." The 10,000 men on the subway, though all under sub-contractors, are protected by an effective scheme of arbitration devised by Mr. McDonald.

He is a member of many clubs—the Lawyers' Club, the Manhattan Club, the Colonial Club, the Maryland Club, the New York Yacht Club, and of several golf clubs as well, for he is enthusiastically devoted to that game and is an expert player.

AN UNFINISHED SKETCH

The memorial to the soldiers of Centre County, Pennsylvania, and to Governor Curtin, War Governor of Pennsylvania

GEORGE GREY BARNARD, SCULPTOR

BY

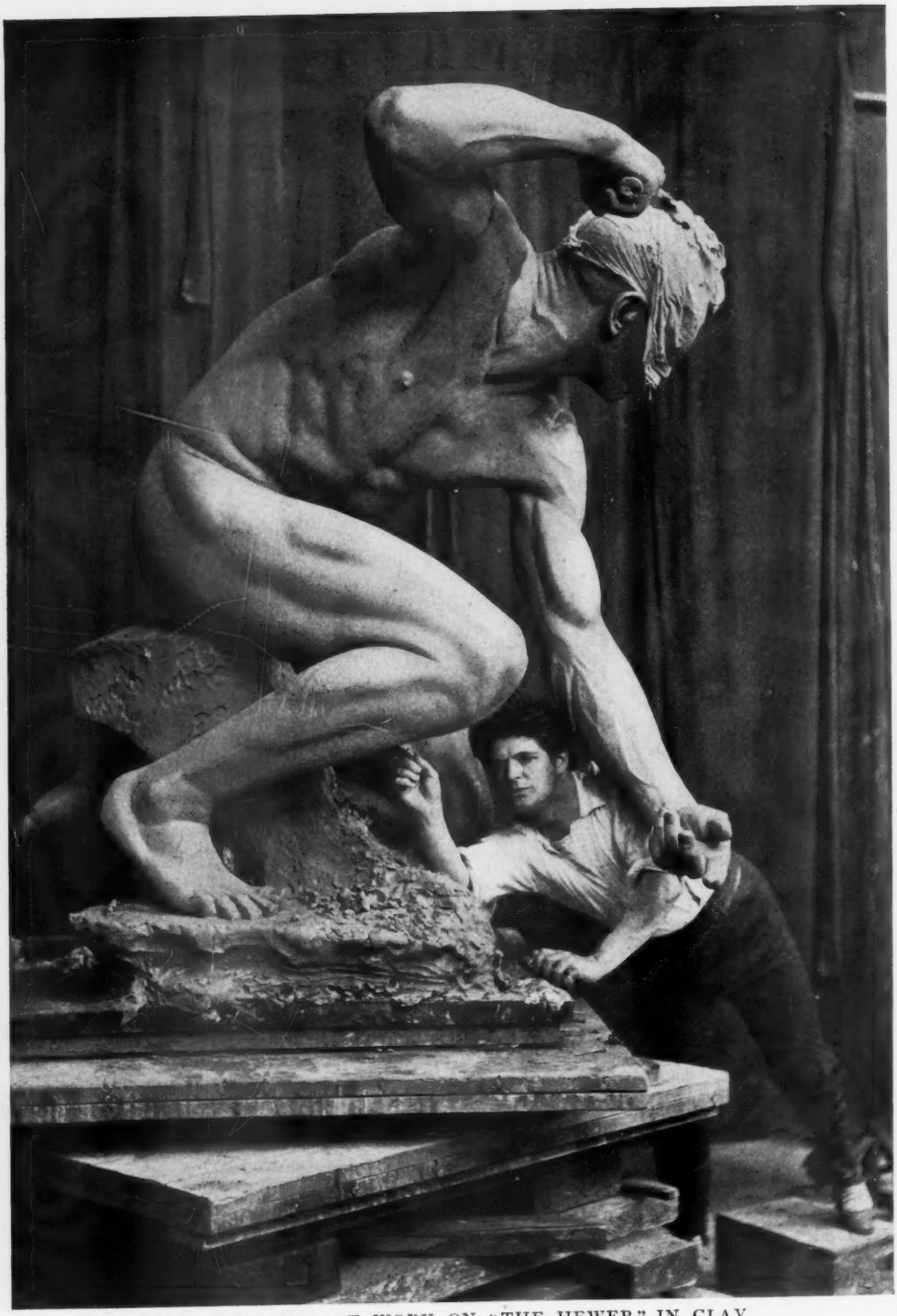
ALEXANDER BLAIR THAW

Illustrated from photographs by W. E. Cooper and G. C. Cox and a portrait by A. R. Dugmore

NATURE'S first appeal, to a child or to a young world, is through the eyes. Before we give much heed to the spoken word, even before we learn to listen to the power of sound, how we delight in color, how eagerly we try to grasp everything that comes within our vision. Painters and sculptors give us pleasure and delight by their power in the handling of color and of form. But not often shall there appear the man who can do more than this, who shall fill our hearts with wonder and our eyes with tears. To do this, the artist must feel. How deeply, how intimately must he feel the meaning of our life! Through what long and terrible struggles must he go before he can express this meaning to the world! This story, of inward suffering and of both interior and external struggle, is in a few words the story of the life of George Grey Barnard, the sculptor.

And now, with the best of his years still before him, he is given a unique opportunity for expression, since he has been awarded the contract for the entire sculpture scheme for the new capitol of Pennsylvania, the largest contract ever given to a single sculptor in the country. The members of the commission and the people of Pennsylvania are to be congratulated both upon the wisdom shown in giving the painting and the sculpture to a single painter and a single sculptor, and upon their choice of the men for the work. With Edwin A. Abbey to do the painting one can rest assured that the mural decoration is in safe hands. The State of Pennsylvania is also to be congratulated upon being able to show to the rest of the country, in the commissioners, and in their architect, Mr. Joseph M. Huston, an example of artistic knowledge and of freedom from any kind of influence or partisanship, either artistic or political. And the country at large, the whole world indeed, as well as Mr. Barnard himself, are to be congratulated that he is to have this opportunity to do the great work that is in him.

That Mr. Barnard is a man of unusual powers and a sculptor of great genius will appear beyond a doubt to any one who shall study the man, his life and his present achievement. It is a part of the fitness of things that Pennsylvania should have chosen a son of her soil for this work; for Mr. Barnard was born at Bellefonte, Pa., in '63. Like her, his riches lay deep within him, and like her he had to hew his wealth out of the rocks and stones. But it was equally fitting, and even more necessary, that he should have gone out West while still very young and so become a son of the greater America as well. Near Chicago, on the shores of the great lake, until twelve years old, and then, until sixteen



MR. BARNARD AT WORK ON "THE HEWER" IN CLAY

"THE HEWER" IN MARBLE

THE FAMOUS CARVED OAK CLOCK CASE

DETAIL FROM THE CLOCK

Every child in our day inherits the precious "Life of the Past" in a wealth of detail and sense of growth of the world that could not belong to Homer or Phidias. From reading our histories of "Man and Earth" a vision in its ensemble, taking the form of an evolution, becomes an ever present consciousness. This consciousness and relation of earth, its elements, wind, water, roots, and unseen powers, with man struggling out from it all like a spirit on the waters, is what I have feebly expressed in my carving of oak. Struggling against and out from the water and roots gleams here and there a serpent form typifying unseen power. Man. This struggle between the elements and man goes on up to the foot of the dial, where the water ends and roots first take bud and leaf. The two sources of nature in the form of man and woman holding urns from which water flows in the depths below, the maiden at the top typifying peace and simplicity, the true rulers over all. —*George Grey Barnard.*

years, in Iowa, on the Mississippi, wandering through woods and swamps by day and night he learned to know the creatures.

The son of a clergyman of broad sympathies and of a mother through whom chiefly his artistic temperament was derived, he was never hampered spiritually or intellectually, though in the struggle for existence he was always hard pressed.

When only nine years old, through the delightful experience of a boyhood's intimate acquaintance with an old retired sea captain, whose wonderful collection of shells and minerals became later the nucleus of the collection of the University of Chicago, the boy learned much of geology, and grew to know every shell as he later taught himself to know every bird and animal. By fifteen he was an expert taxidermist and in the habit of drawing each creature from the life and so mounting them. He had as many as 1,200 specimens in his collection at this time. Then for about three years he earned his living as

an engraver and worker in gold and silver ornaments. But at the same period he had already found his vocation and begun to model in clay. He was only seventeen when he refused the offer of a situation which would have "fixed" him for life. From that time onward we find him constantly refusing to accept any and every condition that would

MAN'S STRUGGLE WITH NATURE
An unfinished fragment

FRAGMENTS FROM THE URN WHICH IS TO HOLD THE ASHES OF ANTON SEIDL

From this central group twenty-seven figures of life encircle the urn

GEORGE GREY BARNARD

GOD PAN

Old Pan, past master of the flute,
Thou lusty, dear, melodious brute,
Sit on thy haunches by my side
And blow my spring dream open wide.
Puff out thy shaggy jowls and make
The honey buds of nature break
Abloom for joy; stir up the juice,
The sap, the chlorophyl, and loose
Once more the tender, searching strain,
While all the world goes wild again.
Puff out thy shaggy jowls and blow,
Now high and clear, now soft and low,
Until the music stirs my feet,
Until my veins the measure beat,
And that vague wonder masters me,
The panic of thy melody.
Ah, Pan, Pan, Pan, one of thy boys
Still holds to those Arcadian joys,
Those simple, deep born, keen delights
Of colors, perfumes, sounds and sights
And love, love, love, when in the Spring
The flickers pipe and thrushes sing.

—*Maurice Thompson, in The Independent.*

"BROTHERLY LOVE" OR "FRIENDSHIP"

A copy of a large group on a monument in Norway. The marble typifies that which separates all loved ones though we reach forth with infinite love

seem to him to compromise his conscience or bind his genius.

At the age of seventeen therefore, upon the sum of $89 which he had saved, he lived a whole year in Chicago, a year of unbroken toil and untold delight, drawing and modeling at the Chicago Art Institute. Humanity had become the object of his study, and the world a piece of clay for his strong hands to model. There was a closed room in the Institute building, closed and locked because the students of the previous year had mutilated the treasures concealed behind that locked door. This treasure was a complete collection of casts of the works of Michael Angelo. One day the President of the Art Institute gave the key of that door to the boy Barnard, and there, for the first time, the man Barnard found himself face to face with the great drama of humanity as expressed through the human form. From that day he has known his own powers clearly, and has gone on over obstacles and through privations, temptations and sacrifices straight toward his goal.

At the end of his eighteenth year he received an order for a portrait bust of a child. After making his model in clay he took it to

"I FEEL TWO NATURES STRUGGLING WITHIN ME"

"This group is intended to express the battle we all wage who open our heart and mind to the light'—*George Grey Barnard*

"I FEEL TWO NATURES" IN ITS PERMANENT POSITION IN THE NEW WING OF THE METROPOLITAN MUSEUM

a marble yard, where a piece of marble was given him. There was no one in that country who could give him a word of help. There was the head in clay, and here was the piece of marble, which had to be hammered till the marble became a copy of the clay. His only tools were a hammer and chisels! It was an impossibility, but it had to be done! And it was done, the young sculptor receiving $300 for his work. And now the road was open to Paris!

There, for twelve long years, Barnard struggled to bring out the genius that was in him, and against difficulties of every kind; for, besides all the ordinary trials and temptations of Paris, he had at times to bear the extremes of hunger and of cold. But there were generations of strength in the moral and mental fiber of the young artist. Besides these, and in an unusual degree, he possessed that personal force of will by which the Young America is so rapidly taking the leadership of nations: only, instead of steel or iron, he is hammering marble and bronze into shape for her greater glory.

Yet, though he were all will, he might still have failed of his purpose, but for a rare perfection of physical health and strength,

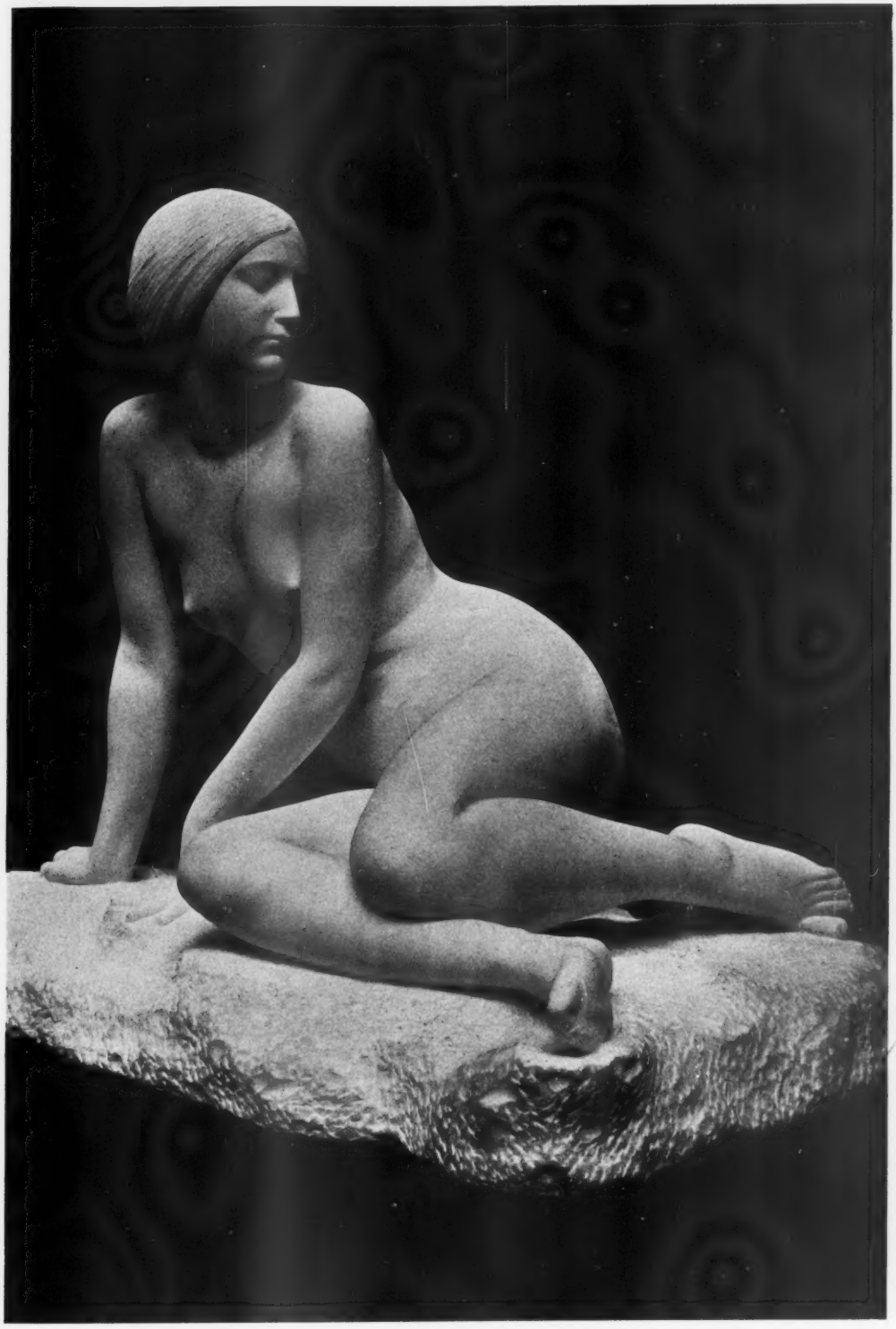
"MAIDEN WITH THE ROSES"
A marble in a mausoleum in Iowa

without which he could not have endured such extreme hardships. For instance, there was a time when, for many months, with nothing to eat but a little rice and milk, he kept on constantly with his work, drawing or modeling sixteen hours a day. And so during these twelve years, in the midst of that gay Paris, he had to struggle for his very life.

There, during these years, the boy of the open prairie found before him the opportunity

"THE BOY"
Modeled in 1884. This is in the private New York collection of Alfred Corning Clark

to train eyes and hands more and more closely, to follow the reality of life and the actual form of things, and to force that actuality into harmony with the ideal image which filled his heart and mind. In the schools, and later, for many years, alone, his skill in handling clay and charcoal and the development of his powers of visualization brought him many honors, all culminating in the year "'94," when, at



"MAIDENHOOD"

the age of thirty-one, he won his greatest success up to that time upon the exhibition of his work at the Salon, a triumph accorded him by a jury of the greatest artists, by the foremost critics and by the people of Paris.

Shortly after, against the advice of his friends and, as usual, following the dictates of his own will and conscience, he returned to America; and it is, after eight long years, a thing to be thankful for that America has learned to appreciate his work and to realize that in George Grey Barnard she has produced that man of the ages, a really great sculptor.

It is a thing of happy omen, too, that his first work, made in Paris fifteen years ago, was seen and appreciated by a fellow countryman, the late Mr. Alfred Corning Clark, and by him bought, at a critical time, when Barnard could not have borne much longer the extreme privations of his condition of life. This work, "The Boy," made when Barnard was little more than a boy himself, was modeled in his little bedroom under a roof through which the rain and snow poured in, so that the sculptor was obliged to hang canvas over his iron bed; and the clay in its wet wrappings had to be covered with part of his bedclothes.

One day after his four-mile walk from the Beaux Arts to his room near the Versailles Gate, he found a note asking him to call at the hotel at which Mr. Clark was stopping. The next evening at dusk, in clothes that were mere rags, he reached the door of one of the great hotels near the Opera, only to be stopped by the doorkeeper. But upon Barnard's quiet insistence that a gentleman wished to see him, inquiries were made and it was found that "the boy" should be admitted. And

A MEMORIAL TO MR. PLANT

of the Plant System, given by his employees. It is on the grounds of the Tampa Hotel, Tampa, Florida

these two Americans met in the private parlor, and the boy sat down just as he was to a Parisian dinner, his first dinner in many months.

They sat and talked for awhile—and each understood the other. But when they parted who shall say which was the happier or the more deeply moved, the man who had found that boy or the boy who had found a friend. With the fabulous sum of 1,500 francs as partial payment for his first statue, wrapped up in his new friend's handkerchief and put in his hat for safe keeping (for there was not a safe or secure pocket in his rags) Barnard ran, through the night, all the way to the studio of an American acquaintance (for he dared not return to his home near the haunts of thieves and murderers), and there he lay on a couch, dreaming all night of the great work that he was to do.

Great work it is and will be, and therefore it does not always make an obvious appeal. But since sculpture is the most direct of the arts, the great sculptor is able to show to every man something of the divine in human form, something of the relation between man and the universe. As the man develops with the universe a greater harmony appears in the midst of the struggle. So in Barnard's work there is evident a process of evolution. Yet, as the bud contains the complete flower, so in his first work, "The Boy," there is some suggestion, not only of the struggle in "The Two Natures," but of the wonderful simplicity and repose of "Maidenhood."

In the beautiful figure of "The Boy" we seem to see—for the work of the true artist gives liberty, not limits, to the imagination—we seem to see not only a half-unconscious expression of the sculptor's boyhood, dreaming, and groping in the earth for light and truth, but, more than this, we see in it something of our own experience revealed; and then, in the beauty and strength of this young bent figure, we feel all the coming possibilities of the man's power.

His next work of importance was an order for the tomb of a Norwegian philanthropist, a man who gave not only his money but himself to his fellow man. The work is called "Brotherly Love," and shows the nude figures of two young men with their heads partly buried in the rough marble, through which with their hands they seem to be groping for each other. It is a beautiful work, with a rare charm and an original quality of attractiveness of its own.

It is in this way that Barnard seeks to make his appeal, through the simple symbolism of humanity itself, with none of the adventitious aids of convention or traditional allegory, and free also from their limitations which held back even the strong hand of a Michael Angelo. Therefore, we are not altogether surprised, when we turn to look at the great group called "I Feel Two Natures Struggling Within Me," to feel a sense of doubt, or at least of wonder; and we ask ourselves whether the sculptor, in this group, taken by itself, has not ventured too near the confines of his art.

A study of the group, however, convinces one that it is important in itself; by its wonderful technical treatment; by the great and immediate impression of struggle which is conveyed in its unique ensemble as well as in the characterization and details of the group; and more especially by its expression of pure vital force. More important still was the indirect value of the "Two Natures" to the artist himself—psychologically as a step in his development as man and artist, and practically as a means of development of his rare powers of visualization and technique.

For one of the most wonderful elements of Barnard's strength lies in the actual handling of the chisel. To the layman it is rather a surprise to learn that the modern sculptor seldom if ever takes a chisel in his hand, his work being done when he finishes the modeling. In Barnard's hands, however, the hammer and chisel have learned to hew and to caress, as they did in the hands of the early sculptors.

A surprising expression of Barnard's power is the next work, completed while the sculptor was waiting to be discovered by America. It is a great clock, an immense piece of wood carving. The conception, though based upon Scandinavian mythology, is the sculptor's most complete and direct expression of the whole of man's struggle in relation to the universe. The wood becomes the giant tree of Norse mythology, or life itself, with its roots running down into primal matter; while all about pours the ocean of chaos. Struggling amidst the waves, winding in great coils, is the huge Mitgard serpent, representing the force that has grown out of inert matter; and now man appears, battling with the serpent,

or human nature in its struggle with natural forces. Among the many groups that tell the story of the ages in this clock of universal time are the three gods of creation. One reaches with aimless hand toward a bit of drift carried by the tide; one takes it and breathes into it the breath of life; and the third speaks to it and endows it with a soul. The central feature of the scheme, standing out in relief from the massive movement and struggle, are the sculptor's trinity—man, woman and child; while, above all the elements of struggle, at one side of the clock-face, is a beautifully delicate figure of a girl, expressive of the purity of life at its summit—on the heights. One looks and looks at the work with growing wonder at the beauty of proportion and of detail, down to the exquisite texture and finish of the varying surfaces.

This work, the sculptor's first and only effort in the handling of woods, is as beautiful and interesting in technique as it is in conception. The delicate and subtle handling of some of the human figures and heads in the midst of the broader masses is curiously fascinating; and the decorative effect of the whole work is very fine and simple.

The great bronze "Pan" is, in this country, perhaps the best known of the sculptor's works, having been seen for a year at the Metropolitan Museum—where in the new wing "The Two Natures" has a permanent place; and it is to be expected that the City of New York, which received "Pan" as a gift from Mr. Clark, will soon find a fitting place for this great bronze. "Pan" is an original, unconventional and very lazy god of the woods and streams, and both in treatment and conception a frankly decorative individual, with a grin and a pair of flopping ears, one up and one down, all quite his own; yet truly a person of great importance, and for other reasons than those of his being the largest single piece of bronze in the country, and of his having created a very panic, as it were, in the New York Board of Aldermen, when they failed to find a fitting haunt for him in Central Park.

He is a cheerful and a very living Pan, and, with the clock, shows us that the sculptor had returned, after a long period of storm and stress, to that frank communion with external Nature from which his life and work in Paris had largely shut him out. This change came at the period of his return to America, which was marked also by his marriage to a beautiful American wife. So that he became, at the same time, in every sense, a citizen of the world; and, entering fully into the everyday life of men and women, he began definitely to do the work of humanity for which, on the heights, and in a remoter atmosphere, he had prepared.

Since the "Pan" and the clock he has finished two works, in which this important step in his development is well and nobly illustrated. Of these two works, "The Hewer," a colossal figure in a gray-toned marble from the same quarry as Michael Angelo's "David," and the infinitely and tenderly beautiful "Maidenhood," it may be said that, with all the tremendous difference between them, each is, as it were, a complement to the other; and together they splendidly complete Barnard's present achievement, and serve as sure omens of his success in future creations. In "The Hewer," by the simplest synthesis, he has brought together and concentrated in a single figure of primitive man the whole gospel of labor, in its birth and beginning, in its discipline and in its dignity.

In the harmoniously forceful movement of "The Hewer," as in the very central meaning of "Maidenhood," there is some suggestion of the unusual fertility of conception and invention of the artist, the "Hewer" being but a single figure of a proposed colossal group of "Primitive Man." For Barnard's future promise consists not only in these works already done, but in that exuberance of imagination, not too often seen in modern art, which, given power of execution, is one of the marks of genius.

It is impossible, for this reason, to give more than a very genera. description of his work, a cinerary urn in memory of the late Anton Seidl containing, for instance, twenty-seven figures. Among other orders now on hand, Barnard has an important monument to Governor Curtin to be erected at Bellefonte, Pa., the birthplace of the sculptor as well as that of the great war governor.

In "Maidenhood" modern sculpture in America, through Barnard's heart and eyes and hands, has achieved that rare and indescribable loveliness of utter simplicity, that unconscious purity and beauty which is the ultimate word of great art. In this work, as in several others, the sculptor has taken his model in an almost accidental pose. The

thing that we see in the marble as it stands is the infinite beauty which he beheld, as with eyes half closed he worked upon that mass of clay until the lines of the model and of his dream—if you will have it so—and of the plastic clay, and then the stubborn marble, became fused into one beneath his hands.

Who shall say whether he created that beauty, or, finding it there, copied what he saw? Through him and through his power it has become a reality for us, with almost the mobility of very flesh in the texture of the marble; with the beauty of restraining and chastening power in the pure lines of the figure; and in the young girl's face, with its closed eyes, the vitality and eternity of love.

WHAT EMPLOYERS SAY OF PROFIT-SHARING

THE VARIED EXPERIENCES OF EMPLOYERS IN ALTRUISM, ESPECIALLY IN THE GIVING OF CHRISTMAS PRESENTS—GIFTS SOMETIMES MISUNDERSTOOD—THE SWEDISH WORKMEN WHO SAW THE PRESIDENT—WHAT EMPLOYEES PREFER

BY

FULLERTON L. WALDO

"SUPPOSE we gave them each a turkey at Christmas time," an employer said to me—I was trying to find what employers do in the way of gifts at Christmas time or any other time to establish cordial relations with employees—"Suppose we gave them turkeys. You would hear them muttering 'We must have made a good deal of money for the firm, first and last, or their consciences wouldn't have pricked them to give us this sop."

This was one man's opinion. Others had different views. Some objected to discussing the question at all. "We fear," one writes, "that articles on these subjects have a tendency to encourage a spirit of unrest in the minds of those who are least entitled to such recognition." Certain conservative business houses prefer not to exploit their policy, in some cases because they desire that the charity shall be unostentatious. In other cases it may be that employers are unwilling to betray unsuccessful experiments. Inquiry as to the practice of a number of industrial concerns has elicited replies which, in some cases, touch upon the larger, but kindred, considerations of the introduction of pension systems, the division of profits, and various practicable schemes of coöperation.

The president of an important steel and iron company believes in some practicable system of coöperation, but not in the premium or gift-giving idea. The pound of tea should stand on its own merits, and the cost of the china pitcher it were better to put into improving the quality of the tea. It is not feasible, he holds, for railroads or large industrial organizations to make small gifts to their workmen because of the large number of operatives involved in any general distribution. In Germany, he points out, the government pensions the vast horde of agricultural laborers.

I talked with a chief of staff in a Sixth Avenue, New York, dry goods house employing 1,800 people, where a system of organized beneficence has been in operation for fifty years. It is a scheme of adjustment according to the deserts of the individual and the length of his or her term of service. The reward of merit frequently takes the form of vacations of several weeks; and frequently there are opportunities for travel in Europe, with expenses paid, and perhaps not much to do in the way of business. Sometimes presents of money are given; sometimes percentages of profits are divided. The giving of such percentage is the usual practice

in the case of managers of departments. In any case, what is given is known only to the giver and the recipient of the gift. Were a vote taken of the employees the result would not be in favor of a general distribution of small gifts, such as is the custom in many establishments at the Christmas season. This was the house that did not favor the giving of turkeys at Christmas.

A certain soap manufacturing company, employing 1,100 hands, has made a practice for twenty-five years of giving turkeys at Christmas to its workingmen. The boys are given their choice among small articles of cutlery; and each of the girls receives a teaspoon and candy or some toilet article made by the house employing them. Foremen and chiefs of departments "receive more substantial recognition." With reference to this custom of giving turkeys, an officer of a similar—and world-famous—concern remarks: "This was probably a small matter when the custom was inaugurated, but at the present time we bull the turkey markets in one of the counties of the State. As our man who makes these purchases says, we always have young and tender turkeys because we buy up the entire crop of the neighborhood each year."

The size of a gift has little to do with its intrinsic value; and small courtesies are often much appreciated when they betoken a special thoughtfulness. This the manufacturers of certain well-known cereal foodstuffs realize. "We try to arrange our payday at that season so as to give the employees their money right up to a day or so before Christmas in order that they may have it for their Christmas shopping. We also give them, a day or so before Christmas, a half-day off, for which we give them full pay. This is done so as to give them ample time for their Christmas shopping. In the way of a little gift, we give the employees a turkey and supplies for their Christmas dinner."

A large manufacturing firm in Worcester, Massachusetts, employing many Swedes, has likewise found a managerial regard for local sentiment conducive to good feeling between operatives and employers. "Within a year or two after we became established here we adopted the custom of distributing turkeys among our employees (at Christmas time), giving everybody, man, woman or child, a good-sized turkey. For several years, also, a Christmas entertainment was given—a portion of the expenses being paid for by us and a portion by the employees, through subscriptions. These entertainments consisted of music and acts from such talent as was found among the employees, and sometimes outside talent was employed. Often we had a dinner or a lunch either before or after the entertainment. These entertainments were always very successful and seemed to create a friendly feeling. After awhile, however, the number of employees increased to such an extent that there was no suitable place in which to have these entertainments; so we adopted the plan of having a shop picnic about Midsummer's Day, June 24th. Seventy-five or eighty per cent. of our employees are Swedish, and they make a great deal of Midsummer's Day as well as Christmas. It was, perhaps, their sentiment in regard to this, as much as anything, that led us, in the first place, to arrange for these entertainments.

"The other day, when President Roosevelt visited Worcester, he landed at the station opposite our office entrance. We erected a grandstand on the green in front of our office building large enough to accommodate seven or eight hundred people, which was just about sufficient for our employees and their families, and gave them a good opportunity to see the President . . . To show you the interest that our men took in the visit of the President, about eighty of them went out into the woods and got greens to help on the decorating, and they worked nearly all day Monday, Labor Day, making preparations. Last Christmas time they went out into the woods and gathered greens and trees and decorated the interior of the factory so that it looked very pretty. This is a Swedish custom and we think a very nice one, and we like to encourage it."

"Our problem," said a high official of the New York, New Haven & Hartford Railroad, "is not like that of a department store. The railroad runs through a great many towns, and employs many thousands of men. No system of Christmas giving on any large scale would be practicable; we would be robbing the stockholders. To introduce a system of pensioning off employees would likewise require the expenditure of what must be regarded as the stockholders' money. The cases of employees temporarily disabled or

permanently retired on account of injuries received in the service are considered separately. A question has been raised, and is now mooted in the courts, as to the legality of the Pennsylvania Railroad's embarking on a certain form of the insurance business, with a sinking fund established by contributions from the employees' wages."

The remarks of a staff officer of the New York Central Railroad were to the same effect. "The Central has no system of pensioning off veteran employees. We believe in paying a fair business wage for services rendered and letting it go at that. Instances of faithful and diligent service extending over a period of many years would be considered on their individual merits. The Delaware, Lackawanna & Western is, I believe, considering the establishment of a pension system of some sort. But we have no such scheme here. And to give Christmas presents or percentages of wages from the stockholders' money to the vast number of employees in our service is impossible."

One of the greatest of our great life insurance companies has a thorough system of pensioning off employees grown old in the harness. But to grant a percentage of profits, or of yearly salary to the army in the company's pay, is declared to be impracticable. "The money is locked up with the policies of the policy holders, and is theirs just as much as the money of the stockholders in a railway company belongs to the stockholders." The beneficence of this company to those in its employ has taken a very practical form in the establishment of a school of instruction in matters relating to the business of life insurance. A school of banking and finance has similarly been established by one of the great Wall Street banking houses, under its own roof; and a large department store in Chicago has likewise an adjunct of the same sort.

A prominent concern in Newark, New Jersey, has tried, and abandoned, the project of profit-sharing after years of experience. "I talked it over with some of the men," the president says, "and we came to the conclusion that turkeys given at Christmas and presents, given now and then in the event of their marriage, or of a funeral or something of that sort, would produce a better effect, and so our profit-sharing has really been stopped. . . . I am still in hope of turning our business into a real coöperative concern in which the men will share not only in the profits but in the management. I think the sharing in the profits without a sharing in the management does not produce any really great benefit."

A certain large electrical company does not believe in making gifts to its operatives. It pays high wages and cares for sick or injured employees. It is considering, but has not yet adopted, a scheme of pensioning. A car manufacturing company "has always made it a point to remunerate one and all of said employees to the full extent of what they merited. . . . We have not made special consideration for them at Christmas time."

A writing machine company gives a bonus of $100 annually to employees of at least ten years' standing—$50 at Christmas, and the rest at vacation time. This bonus, however, is given only to those who have attained the salary limit.

To the traveling men of a Chicago house, a bonus, based on the amount of each man's sales for the year, is paid at Christmas time. This operates strictly as a reward of merit, the amount each man receives being determined by the sum total of the sales he has personally made during the year. Many of the 200 traveling men thus add from a tenth to a half to their salaries.

A conservative manufacturing establishment in Rhode Island is also of those that do not believe in specific Christmas giving. "We consider that ordinary men are better satisfied, in the long run, to have the best of wages and to know that they can obtain such wages steadily."

What is the general inference to be drawn from these various responses, indicating a wide divergence of business policy? It is, perhaps, that indicated in the opinion last quoted. Adventitious giving, unless the nature and amount of the gifts are carefully calculated according to the relative deserts of the recipients, does not in all cases result in the promotion of a cordial good will among the members of an industrial establishment. The typical American workman is ready to enter into the fruit of his labors in the shape of regularly paid and sufficient wages, considering this his just due, and willing therefrom to supply his own necessities as well as luxuries. He does not as yet, on any large scale, demand to be made a profit-sharer.

A MEANS TO EFFECTIVE ARBITRATION

BY

FREDERICK W. JOB

CHAIRMAN OF THE BOARD OF ARBITRATION OF ILLINOIS

TWENTY-FOUR States have already enacted statutes providing for the adjustment of disputes between the employer and employee. In only a very few of these States, however, has the desired end been accomplished.

In some States only $2.00 per day is paid each member of the Board for every day he is helping to arbitrate a labor disturbance. Other States provide $4.00 per day as a salary for such work. Where the salary is large enough to attract men of standing and ability another drawback is in the lack of methods for carrying into effect the findings of the Board.

It is believed that the amendment to the arbitration law of the State of Illinois, proposed by the present Board, and passed by the Legislature of 1901-1902, has to a great extent solved this difficulty. This amendment says in substance "that the duty of the mayors and town presidents and of the executive officers of the labor unions, in case of a strike involving more than twenty-five employees, is to communicate with the State Board of Arbitration, giving full details." And "whenever there is a strike or lockout by which the general public appears likely to suffer injury or inconvenience with respect to necessities, and neither party to the strike consents to submit the controversy to the State Board of Arbitration, the Board may proceed of its own motion to make an investigation and to make public its findings, with recommendations, and in the prosecution of the inquiry the board has power to issue subpœnas and compel the attendance and testimony of witnesses."

Prompt notification of labor troubles to the secretary of the Board by the presidents of towns and by mayors of cities throughout the State resulted, in many instances, in a quick, quiet and harmonious settlement of the difference. The presence of the Board without more than a casual inquiry and with a few recommendations has sufficed.

While the amendment was designed to cover principally the cases of employees and employers who conduct plants in which the public is interested, such as transportation companies or telephone, telegraph or lighting plants, yet that part of the amendment giving the Board authority to make investigations "whenever there shall exist a strike wherein in the judgment of a majority of the Board the general public shall appear likely to suffer injury or inconvenience . . . in any other respect," has been of incalculable benefit to us in our independent inquiries.

The unwilling party is generally represented as the case proceeds and takes a lively interest. The example of the party to a suit at law who permits it to go by default stimulates the unwilling side.

Immediately upon receiving information our Board proceeds to the scene of the dispute, and if attempts at conciliation and mediation by us fail, steps are at once taken to make a searching inquiry. Subpœnas are seldom found necessary, for the disposition to be an involuntary witness and to compel the Board to resort to the use of the subpœna is too apt to be taken as an indication of weakness. The books of the employer are usually produced and comparisons of prices of labor of manufactured goods with other competitors are shown; the cost of necessaries of life, comprising clothing, rents, foodstuffs and other things, are made by the employees, which in turn are met by the employer with comparisons of freight rates of the products of the industry he is engaged in. By this careful sifting out of the essence of the controversy and by the elimination of the less difficult features a conclusion is reached.

The decisions of the Board have always been characterized as fair. With a bipartisan and non-political Board of one employer of labor, one bona fide employee and a third neither employer nor employee, the opportunity for the accusation of prejudice or politics is reduced to a minimum.

THE HEAD OF THE INTERNATIONAL SHIPPING CORPORATION

THE PERSONALITY OF CLEMENT A. GRISCOM—HOW HE PLANNED AND ACCOMPLISHED, WITH MR. MORGAN, THE GREAT COMBINATION OF SHIP-OWNING COMPANIES

BY

LAWRENCE PERRY

NOT many years ago King Leopold of Belgium was one day holding court in Brussels. Among those waiting to be presented were Clement Acton Griscom and Mrs. Griscom and the United States Minister to Belgium. Mrs. Griscom had never met the queen. The minister, recently appointed, had just arrived in Brussels, and stood directly in front of the Griscoms. When he was presented the king greeted him in his hearty way, welcomed him to Belgium, and then, suddenly breaking off, said:

"By the way, have you ever met Griscom, Clement A. Griscom? No! Well, you should; he is a rare good fellow and a great friend of mine," and the king went on with as sincere and honest a eulogy as ever man uttered. He had not noticed Mr. Griscom. All at once he caught sight of him.

"Why, hello, Griscom," he cried, his face beaming with pleasure; "what are you doing here?" And he shook his hand, an act quite beyond the pale of court etiquette.

This incident reveals the man, and furnishes a key to the secret of his success: he is popular with his fellow men. He has a way of making them like him; not because of any vacillating good nature, for he is outspoken against all shiftlessness, meanness and deceit. His ways are sharp and incisive and he likes men of those same characteristics—men who can understand thoroughly that the inch he frequently gives may not be construed into a mile. But he is a good companion; and the assurance of sympathetic, whole-hearted friendship is conveyed to the veriest stranger by a handshake and the quick glance of his eyes. As different from Mr. Griscom as the late President McKinley was, the two men may be likened in this respect—in the winning of men. Bluff, energetic, determined, forceful, he is a man who does things, and does them thoroughly. He is a fighting man, and each victory has only opened the road to larger fields of effort crowded with apparently unsurmountable difficulties. When the International Mercantile Marine Company, better known as the Morgan Steamship Trust, was organized, Mr. Griscom's selection for the presidency was inevitable. He was the logical man for the place; for the steamship trust was his idea, his conception fifteen years ago, and his greatest ambition. It is attained now, but there is still much to do, and no one better prepared to do it than he.

Mr. Griscom was born in Philadelphia on March 15, 1841, coming of good, substantial Quaker stock dating back to William Penn. His father was a leading physician in Philadelphia with sufficient means to allow his son to select his own life work. As a boy he had no special bent, and no one seems to remember any incident of his boyhood life which might have given a hint of his future. He had no desire for college, although he has since been heard to regret that he did not have a university training. Until his sixteenth year he attended the Friends' Central High School, where he showed such proficiency as a student that on the day of his graduation Aaron Ivins, the famous old schoolmaster, offered him a position as partner in the conduct of the Friends' school. Young Griscom, whatever his bent at that time, certainly had no leanings toward pedagogy, and he entered the importing firm of Peter Wright & Sons in 1857. At once those traits which distinguished him later began to appear. He got his firm to purchase their own sailing ships, and profits increased tenfold. They admitted him to partnership when he was twenty-two years old. The firm purchased more vessels, and finally it put into operation a scheme which young Griscom had evolved in his nine-

teenth year—that of carrying oil to Europe and bringing back crockery. It was successful, and when steam came into general use steamships were added to the company. Thus Mr. Griscom's idea became the forerunner of the great Standard Oil trade. He had but one set plan for his life work — progress. But that did not necessarily mean that he must work in a rut. He saw his way clear to a certain success if he confined himself to his trading interest, but he began to foresee an even greater success in a wider field. He mastered the study of marine architecture. Soon the Society of Naval Architects and Marine Engineers was organized and he was its first president. Each successive year he has been reëlected to that office. But if he began to identify himself with outside interests he did not allow that to interfere with his business. Through his efforts Peter Wright & Sons became the agents of the old American Line, then one of the greatest lines, operating the famous old steamships *Ohio*, *Indiana*, *Pennsylvania* and *Illinois*. This led to greater things, and in 1871 Mr. Griscom went to Belgium, met King Leopold, won him as he did every other man, and made contracts for forming what afterward became the Red Star Line. Combining their lines, Peter Wright & Sons became the International Navigation Company, and Mr. Griscom became one of the founders of a great power in the transatlantic trade. The greatest steamship men of the world came to be his rivals — and is not a man's greatness measured by the greatness of his rivals? They began to watch him, to copy him, but, as with Mr. Kipling's Sir Anthony Gloster, he left them a year behind, because they could not copy his mental workings. In 1886 his company purchased the Inman Line at auction in Liverpool, and here Mr. Griscom's training in marine construction came into prominence. He wanted new vessels, but he felt that new vessels with new improvements were necessary—something that would mark an epoch in shipbuilding and bring prestige to his company. And so the *City of New York* and *City of Paris* were built—twin screws, ransverse bulkheads, water-tight compartments, a revolution in modern shipbuilding. They all originated with Mr. Griscom. Twin screws: no more wallowing helplessly in the seaway with a broken shaft; no more sinking like an anvil when the hull was punctured. It was without question the biggest step made in shipbuilding since the advent of steam. Through his energy special congressional legislation was passed granting permission for the two vessels to sail under American registry. In recognition Mr. Griscom placed orders for the construction of the next two vessels—the *St. Louis* and *St. Paul*—with an American firm. The results justified Mr. Griscom's confidence in American shipbuilders. In these two vessels Mr. Griscom developed another of his surprises—the construction of staterooms in suites. Incidentally, all four vessels, the *Paris*, *New York*, *St. Louis* and *St. Paul*, were record breakers in their days. In the war with Spain all these vessels played an active part as government cruisers. And later came the so-called steamship trust.

As president of the International Mercantile Marine Company Mr. Griscom directs vessels aggregating a tonnage almost twice as large as that of any other shipping corporation in the world. The combined tonnage of the North German Line is 1,110,000 tons; that of the Mercantile Marine 1,106,000 tons. Mr. Griscom believes that the success of the scheme rests upon the material growth and welfare of this country. The company, which will operate from every large American port, can thrive, he has said, only as the grain belt of the Northwest, the cotton belt of the South and manufacturing throughout the Eastern and Central States shall increase in productive capacity. Transportation must be conducted on a large scale. Exporters will be able to contract with this company, which will stand ready nearly every day in the year to take cargoes in large quantities at any of our large seaports and deliver them without transshipment on a fixed date at any of the great seaports of Europe. The formation of the steamship company has not been artificial. It had become a necessity. Mr. Griscom regrets that the American flag will not fly over more ships than it does. He has said that if the President and Congress will meet indisputable economic facts by legislation, some of the new steamships may be built in the United States, officered and manned by Americans, and actually become a part of our national reserve strength at sea.

Mr. Griscom matured his plans for the steamship combination when everything seemed hopeless, but he clung to them with confidence that the right day would come

From a painting by Fedor Encke

MR. CLEMENT A. GRISCOM

THE HEAD OF THE INTERNATIONAL MERCANTILE MARINE COMPANY

And it came with J. Pierpont Morgan. Mr. Morgan was the one man needed, and with the vital assistance of Mr. Griscom's practical knowledge and ability and acumen the Morgan Steamship Trust came to startle the world.

But the man. Mr. Griscom is essentially a family man. He has a town house in Philadelphia, but most of the time he lives in his country home, "Dolobron," in Haverford, near Philadelphia. Here he frees himself of business cares. He keeps open house, and, being a natural entertainer, he is never so happy as when his house is filled with guests. His office is in Philadelphia, but he spends two days of each week in New York. Mr. Griscom is fond of pool and billiards and plays a great deal in his house, although he is no expert at either. In art he is something of a connoisseur, and he has gathered a splendid collection, the majority being important examples of the Barbizon school of painters—Corot being especially in evidence. Two or three months each year he spends in Europe and is on friendly terms with many emperors and kings. He was recently a guest for a day on the Emperor William's yacht at Kiel. The Kaiser rather admires men who put him on his mettle; he is proud of the two great German lines, and he likes to know what kind of Americans are competing evenly with them. Mr. Griscom owns a stock farm near his country place and he knows a good horse when he sees one; he is fond of shooting and owns quail lands in Florida, and he is an enthusiastic yachtsman, owning the large steam yacht *Alvena*.

Notwithstanding the vast responsibilities of his steamship enterprises, Mr. Griscom is active in many other lines. He is a director of the Pennsylvania Railroad, the Bank of North America, the United States Steel Corporation, Atlantic Mutual Insurance Company, Fidelity Trust and Safe Deposit Company, and some twenty or more other enterprises. He was also one of the organizers of the National Transit Company, and its president for several years. In 1889 Mr. Griscom was a delegate to the National Maritime Conference for revising the "Rules of the Road at Sea," at which twenty-eight nations were represented. He is an honorary member of the British Society of Naval Architects, an honor conferred on but three others at the time—the Grand Duke Constantine of Russia, Lord Kelvin of England and DeLome of Spain. The Queen of Holland conferred the decoration of Knight of the Order of Orange-Nassau upon Mr. Griscom in recognition of the perfect discipline established upon the steamships of the International Navigation Company. The particular occasion of this was the rescue by the crew of the American Line steamship *St. Louis* of the passengers and crew from a disabled Dutch transatlantic steamship, which sank shortly after the last boatload had left the wreck. He has also a Belgium decoration, and he received recently from the French government the decoration of Chevalier of the Legion of Honor. Mr. Griscom is a member of many clubs in New York, Philadelphia, Chicago and London.

How he finds time for all his varied interests is a problem indeed. A business associate recently said that Mr. Griscom's success is due to his immense capacity for work. In the past month, for instance, he has been at his desk eighteen hours a day, tiring out three relays of clerks.

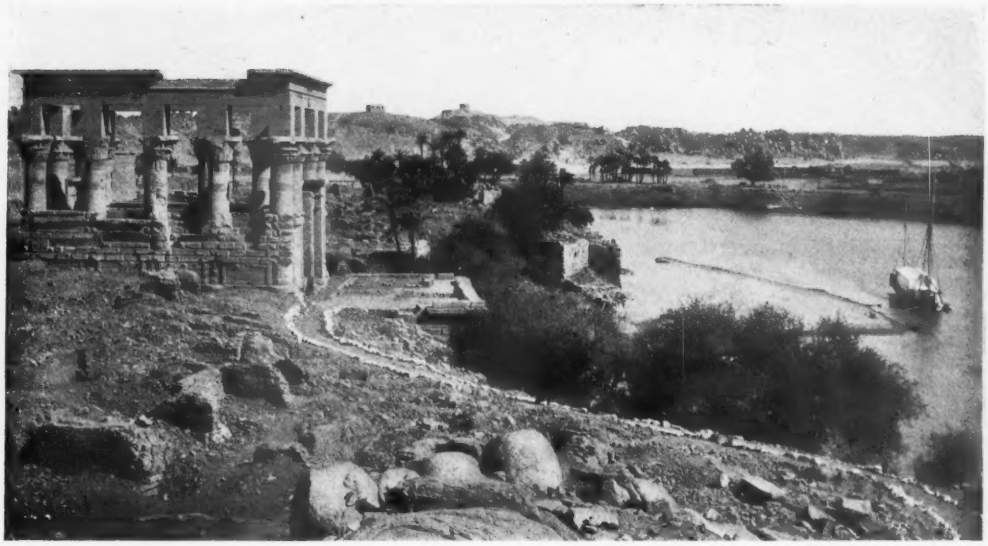
And his influence in politics is marked. He is said to know more men and to have more influence with them than any other man in the country. When the last Republican Presidential Convention (the convention which nominated Mr. McKinley), in session at Philadelphia, was torn with strife over the nomination for Vice-President, Mr. Griscom stepped in and invited the leaders to his home "to talk it over." When they left there was perfect amity. It is in this mediatory capacity that politicians think of Mr. Griscom. "He is a real man!" some one said not long ago; "he tells a good story, and, what is perhaps better, he enjoys hearing one. He gives good dinners, he is a capital host, and he makes a rattling speech."

His hair is white now, and so is his heavy mustache; his dark eyes gleam from under heavy gray brows, and his cheeks with their high color make him conspicuous anywhere. Heavily built, with broad shoulders, he is apparently in the prime of his vigor. You can read the whole story by just seeing and talking to him—the dominant personality is there; he is genial, yet you take no advantage of it; he is kindly, but his eyes can grow hard upon necessity.

And he is not through surprising the world. He is still the personification of the strenuous life—the typical American captain of industry.

THE ANCIENT TEMPLE AT PHILAE

Egyptologists feared that the damming of the Nile might destroy it



Photographed by J. P. Sebah

SUBDUING THE NILE

THE CROWNING WORK OF THE ENGLISH OCCUPATION OF EGYPT—BUILDING THE ASSOUAN DAM IN A ROARING CATARACT—A WONDERFUL FEAT OF ENGINEERING—HOW IT WILL REGULATE THE TRADITIONAL FLOOD AND THEREBY INCREASE THE WEALTH OF EGYPT

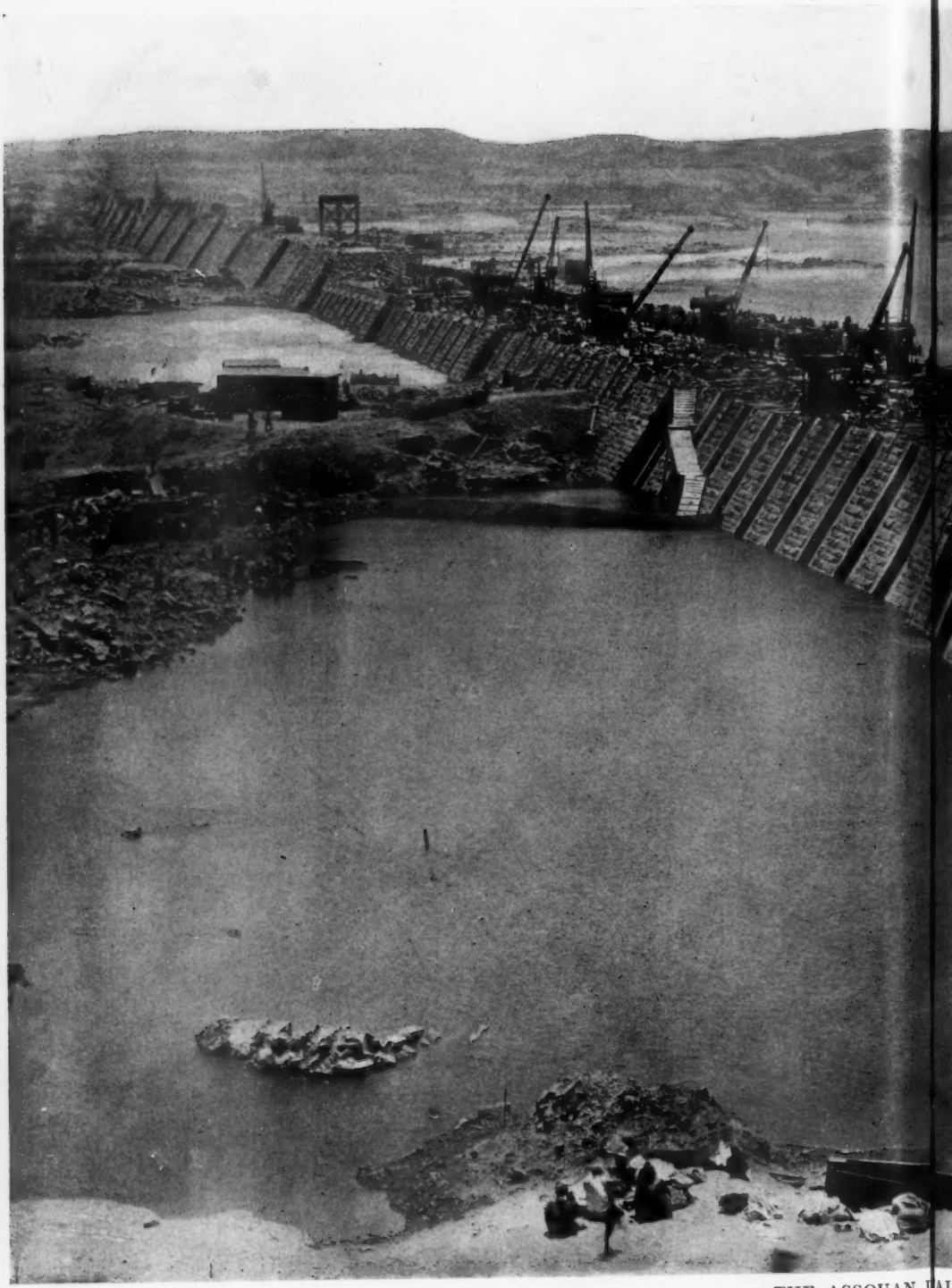
BY

CHALMERS ROBERTS

Illustrated from photographs by D. S. George and others

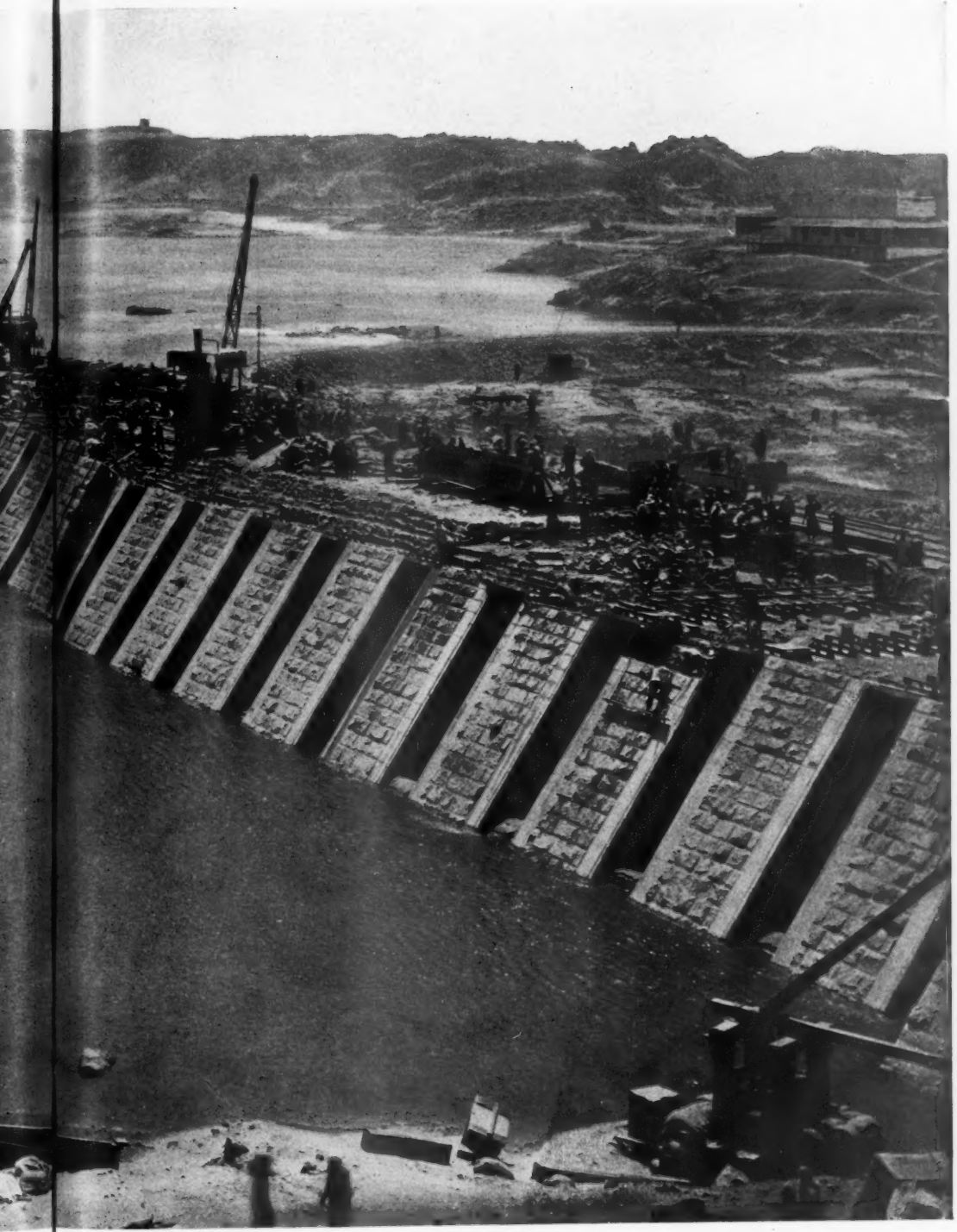
THE wonderful success which has so far attended the British occupation of Egypt in the financial, educational, hygienic, military and also the general political branches of the government is to be extended to its great engineering schemes. The new Egypt, whose rise has been so strange and unexpected, is about to leave a record as monumental and material as any for which old Egypt is famous. And this achievement in its manifold phases has come under the supervision and should lie to the credit of the man who has made modern Egypt what it is. In a recent address upon the great dam at Assouan, the constructing engineer, Sir Benjamin Baker, said, "When the rotten rock in the bed of the river was first discovered I told Lord Cromer frankly that I could not say what the extra cost or time involved by this and other unforeseen conditions would be, and that all I could say was that, however bad the conditions, the job would be done. He replied that he must be satisfied with this assurance and would say that the dam had to be completed whatever the time and cost. With such a strong man at the head of affairs, both engineers and contractors—who are often suffering more anxiety than they care to show—are encouraged, and works however difficult have a habit of getting completed, and sometimes, as in the present case, in less than the original contract time."

The world, which has always heard of the granaries of Egypt, seldom realizes that the 400,000 square miles of Egypt are, all but 10,500 square miles, arid desert. The narrow



THE ASSOUAN DAI

The flow of water is re ga



UAN DALF COMPLETED
water is re gates in the apertures

Photographed by Bonfils

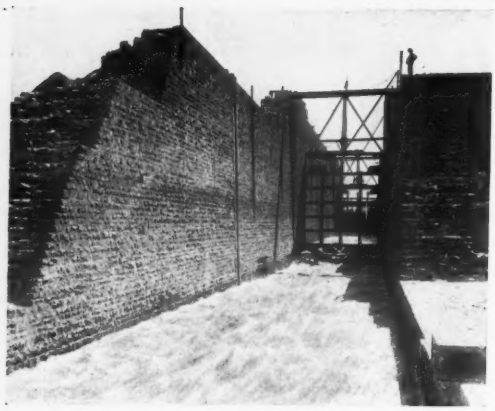
THE TRADITIONAL IRRIGATION METHOD

For centuries the Egyptians have raised water from the Nile with primitive wheels

ribbon-like strip of arable land upon either side of the Nile is barely as large as Vermont and Rhode Island put together. A visitor to Egypt can see directly across the whole of the cultivated land from the edge of the desert on one side to great opalescent sand-hills on the other. For years engineers in the Khedivial service, particularly the engineers of the English occupation, have urged the building of reservoirs that would

THE MODERN IRRIGATION METHOD
English and native workmen building the Assouan dam

give a system of irrigation to Egypt not wholly dependent upon the uncertain Nile floods. It was agreed that the natural advantages of the Assouan site, six hundred miles above Cairo, with its bed of granite beneath the river, the high granite banks on either side and the inexhaustible supply of stone near by, offered advantages not equaled elsewhere. The plans which were soon made were unique. No dam for irrigation purposes, or indeed for a permanent reservoir, had ever been made on a river the size of the Nile. This, too, was to be both a dam, a bridge and a waterway—a rare and difficult combination. It would be useless to try to confine the Nile in flood, and therefore the river must have right of way to run unimpeded through the dam during several months of the year. The dam is for use when the flood subsides but while it is still too high for irrigation purposes. The dam will hold the water for use in the parching summer. Therefore the structure has been divided into a large number of piers, with openings that can be closed at will by gates. Each pier must be capable of supporting its own weight and the pressure of water against the adjoining sluice gates, and the piers must be able to pass the torrent without damage. As the velocity of the escaping flood water will be



ONE OF THE MANY SLUICES

very great, the piers are enormously massive. Locks for steamers and other craft navigating the Nile are nearing completion on the west side. Already camel trains and desert caravans are marching over the broad top of the dam, and on December 9th the Duke of Connaught will formally open the dam.

As the particles of soil contributed to the river by the wash of the mountains and hills in Abyssinia enrich the fields, the dam is so designed that the water released daily for irrigation will be drawn from near the bottom of the reservoir. Egyptian farmers ask always for "red water"—far richer as a fertilizer than clear water. In the autumn, after the silt-laden water has passed, the sluice gates will be closed gradually until the reservoir is full. This will be in January and February. From April to the end of August, when the Nile runs low and the demand for water for the crops is at its highest, the gates will be systematically opened and the summer supply of the river supplemented by stored water from the dam.

It is estimated that this irrigation will add 2,500 square miles of arable land to Egypt, and that the permanent benefit resulting will reach $100,000,000. There will be added to the revenue from the sale of water and from taxation on the irrigated lands £2,000,000. The government will further realize considerable sums from the sale of reclaimed public lands and indirect revenues traceable to the country's augmented producing capacity. Egypt is virtually rainless, but wherever the Nile water can be regularly supplied to the soil the most bountiful crops follow, which like cotton and sugar command high prices because of their excellence. With a reliable water supply, farming in Egypt can be pursued with practically certain success.

THE DAM HALF BUILT

Four or five hundredweight of long staple cotton per acre may be expected, which, owing to its excellence, easily sells for two cents a pound more than American cotton sells for, which in its turn does not average two hundredweight to the acre. Even with the general depression of sugar in the world's markets Egyptian agriculture is confident of obtaining similar advantages for its cane products.

It is very difficult to bring to the average mind any comprehension of the magnitude of this scheme. It is useless to tell most people that the reservoir at Assouan will contain 1,000,000,000 tons of water. This reservoir, according to Sir Benjamin Baker, will hold more than enough water to make one year's full domestic supply to every city, town and village in the United Kingdom with its 42,000,000 inhabitants. During the three or four summer months when the Nile is low and the needs of cultivators are greatest the flow from the reservoir will be equivalent to a river double the size of the Thames in mean annual flood condition. No one who has ever seen the century-old irrigation machines along the Nile by which the water is lifted on a bucket and pole system, or by an ox-driven chain of buckets, can fail to recognize the advantage of this increase in water supply. The watering of an acre of land means raising by manual power about 400 tons of water to varying heights up to twenty-five feet. Four or five waterings are required to raise a summer crop. The great Nile reservoir and dam at Assouan, the Barrage at Assiut, and various supplementary distributing canals are designed to supply in summer a larger volume of water at a higher level in the canal, so that not only can more land be irrigated, but labor in lifting water will be saved.

The total length of the dam at Assouan is about one and one-quarter miles; the maximum height from foundation is about 130 feet; the difference of level of water above and below is 67 feet; and the total weight of masonry over 1,000,000 tons. Navigation is provided for by a ladder of four locks, each 260 feet long by 32 feet wide. No practical man standing on the edge of one of the cataract channels, hearing and seeing the apparently irresistible torrent of foaming water thundering down, would regard the putting in of foundations to a depth of forty feet below the bed of the cataract in the short season available each year as anything but an appalling undertaking. On February 12, 1899, when the foundation stone of the dam was laid, it was planned that the work should be completed by July 1, 1903. It is greatly to the credit of the contractors, Sir John Aird & Company, that they have finished before the contract time. The dam is built of granite ashlar, much of which has been quarried from the Assouan side of the river, coming from the same ledges that furnished the obelisks now standing in London, New York and Paris.

The government let the contract for this work without advancing a single pound—a testimonial to the soundness of Egyptian finances. After the work is completed they are to receive $800,000 a year for thirty years, aggregating about $24,000,000. This is a long credit, and its present actuarial value cannot be much in excess of $10,000,000. Indirectly, the fact that English capital has furnished the money, and that English engineers, surveyors and contractors have carried out the work, points to Great Britain's intention to retain indefinitely her present position upon the banks of the Nile.

Here will be created in the heart of the African desert a lake having two or three times the superficial area of Lake Geneva in Switzerland and throwing back water for a distance of 140 miles, crossing the Tropic of Cancer and extended a goodly step on the way to Wady Halfa. It will be controlled by scientific precision, so that the impounded flood may be turned into distant channels at will. The engineers have estimated the exact cost of the dam, and have computed almost to the gallon the volume of water that will be imprisoned and the necessary resistance to be provided at every point of the masonry. In Cairo the experts of the Ministries of Public Works and Finance have calculated to a nicety the sum from taxation that will come into the public treasury through augmented productiveness.

Subordinate to the great dam a smaller one, not unlike the Barrage at the apex of the Delta, ten miles to the north of Cairo, is to be made at Assiut, to give a sufficient head to force water into the system of irrigation canals that water thousands of acres between Assiut and Cairo. The completion of the old Barrage above Cairo (it was begun by Mehemet Ali Pasha from the plans of a

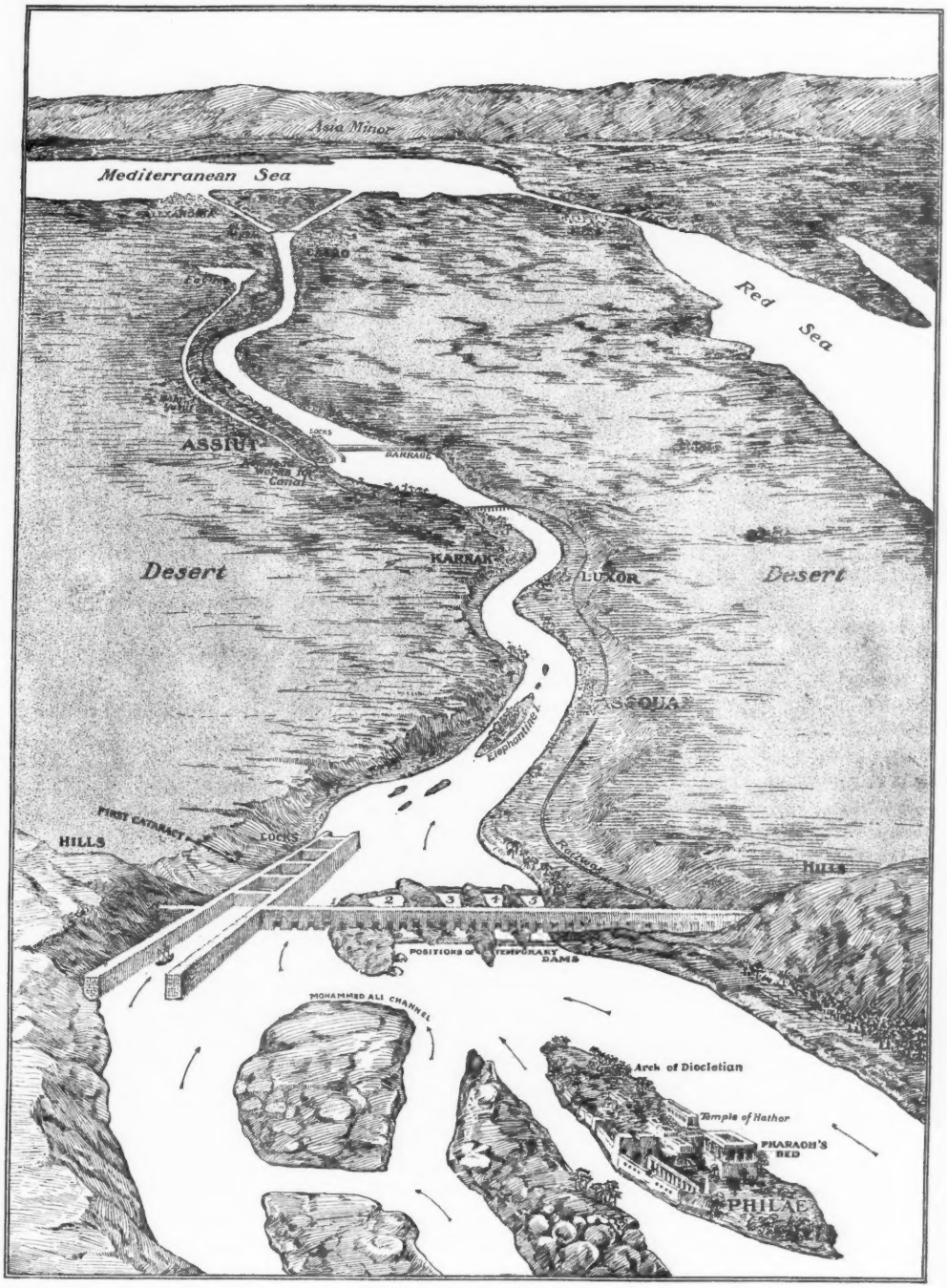
French engineer, but was not made effective till England took the country in hand) so developed the cotton culture as to add to the public revenue of the country at least $10,000,000 annually. It may be safely concluded, therefore, that the Assouan reservoir is but one of a series that will be constructed southward to Lake Victoria Nyanza.

Mr. Frederick Penfield, former United States Consul General in Cairo, who has become such an authority upon Egyptian subjects, says of the enterprise: "Successful in an unexpected degree in augmenting the population of the ancient land of the Pharaohs by enforcing hygienic measures, the British administrators at Cairo are recognizing the necessity for proportionately increasing the area of 'practical' Egypt. When the British occupation began Egypt's population was about 7,000,000. According to an official census just completed (1899), it has risen to 9,750,000, as the result of the caring for child life and teaching the common people to observe rational rules of cleanliness and order. According to this census, practical Egypt has a population of 928 to the square mile, a density far in excess of any European country, even Belgium, and not to be equaled outside of Asiatic communities. It will no doubt surprise most readers to be told that a fair estimate of the value of Egypt's 10,500 square miles of cultivable territory is $115 an acre. It is a fact as well that the foreign bonded indebtedness, naturally based upon the intrinsic value of the country, averages $75.75 per acre, while the per capita proportion of the external debt burden is no less than $52.20. The average land tax of Egypt is something in excess of $4.00 per acre. These vital statistics are mentioned to reflect in its fullest importance what the building of the great dam at Assouan means to the people of Egypt and their European creditors."

It cannot be definitely stated who first planned this reservoir. Mr. Willcocks, one of the ablest engineers of the Public Works Department of Egypt, who was instructed by Sir William Garstin to survey various suggested sites for the dam between Cairo and Wady Halfa, unhesitatingly decided that the Assouan site was the best, and the majority of the International Commission who visited the sites in 1894 agreed. But Sir Samuel Baker, more than forty years ago, had anticipated their conclusion. The single dam proposed by him is in effect the one now on the point of completion. Mr. Willcocks' original design consisted practically of a group of independent dams, curved on plan, the arrangement differing considerably from that of the executed work. The single dam, one and one-quarter miles long, constitutes a more imposing work than a series of detached dams, and could be more easily built; and, further, a straight dam is better able to resist temperature stresses from the extreme heat without cracking. There are 180 openings, all twenty-three feet high by six inches wide, which can let out 15,000 tons of water a second. Contrary to original reports of a sound rock bottom, the rock proved very unsound in many places, necessitating foundations sometimes more than forty feet deeper than was originally anticipated. As the thickness of the dam is nearly one hundred feet at the base, this misapprehension involved a very large increase in the contract quantity and cost of the granite masonry.

To put in the foundation across the roaring cataract channels, temporary rubble dams were built across the rear of the channel below the site of the great dam, so as to get a pond of comparatively still water to work in. Stones from one to twelve tons in weight were tipped into the cataract until finally a rubble mound appeared above the surface of the water. The first channel was successfully closed on May 17, 1899, the depth being about thirty feet and the velocity of current nearly fifteen miles an hour. In the case of another channel the closing had to be helped by tipping in freight cars, loaded with heavy stones and bound together with wire ropes, making a mass of about fifty tons to resist displacement by the torrent.

These rubble dams were well tested when the high flood ran over them; and when work was resumed in the following November, on the fall of the river, watertight sand-bag dams or sudds were made around the site of the dam foundation in the still waters above the rubble dams, and pumps were fixed to lay dry most of the river. This was the exciting moment, for no one could predict whether the thing could be done. Twenty-four 12-inch centrifugal pumps were provided to deal with one small channel; but happily the sand-bags and gravel and sand embankments staunched the fissures in the rocks and interstices between the great boulders



MAP SHOWING THE ASSOUAN DAM

covering the bottom of this channel, and a couple of 12-inch pumps sufficed.

There was great pressure at times to get a section completed before the inevitable rise of the Nile, and as much as 3,600 tons of masonry were executed in one day, chiefly at one point in the dam. The maximum number of men employed was 11,000, of whom 1,000 were European masons and other skilled men.

When the International Commission in 1894 recommended the construction of the reservoir, Sir Benjamin Baker was desirous of knowing what would be the opinion of a real old-fashioned native land-owner. He was introduced to one—a descendant of the prophet, very rich, who had been twice warned by the government that he would probably be hanged if the bodies of any more of his servants with whom he had quarreled were found floating in the Nile. He was a very stout old man, and between paroxysms of bronchial coughing he assured Sir Benjamin that there could be nothing in the project of a Nile reservoir or it would have been built at least 4,000 years ago. In striking contrast to this, Sir Benjamin quotes the most modern and enlightened of all the rulers of Egypt, the present Khedive, who, when visiting the dam, said that he was proud that the great work was being carried out during his reign.

The old system of irrigation was little more than a high Nile flooding of areas or basins surrounded by embankments. Less than one hundred years ago perennial irrigation was first attempted by cutting deep canals to convey the water to the land when the Nile was at its low summer level. When the Nile rose these canals had to be blocked by temporary earthen dams, or the current would have wrought destruction. As a result, they silted up and had to be cleared of many millions of tons of mud each year by enforced labor, resulting in misery and extortion. It was only half a century ago that the first serious attempt to improve matters was made by the construction of the celebrated Barrage at the apex of the Delta.

The old sheik and his contemporaries may well look with wonder upon the work which modern engineers have done. There is a legend that the yearly flooding of the Nile is caused by the tears shed by Isis over the tomb of Osiris, and the question has for uncounted centuries been asked, as a type of impossibility, "Can man arrest the tears of Isis as they flow?" One of the last incidents told in the life of Cecil Rhodes pictures him last Christmas riding across the hot and dusty desert between Assouan and the Nile reservoir works. Glancing round at the apparently limitless desert on all sides, the hills and valleys, beautiful in form but doomed for all time to remain of uniform burnt-brick hue, bare of trees, and of the many-colored growths that adorn a rainy country, he said: "After all there is no climate like England's; and as for the rain there, it does its good work and it really hurts nobody."

There is in all this triumph of utilitarianism one note of objection and complaint. Between December and May, when the reservoir is full, the famous island of Philae will in places be slightly flooded. Therefore the tourist and the archæologist and the artist do not celebrate the completion of the dam with the same enthusiasm as the workaday world. Even if they acknowledged it as the greatest engineering feat of modern times, they yet deplore the partial obliteration of what is generally held to be the most beautiful spot on the Nile. A valiant fight was made for Philae before the first stone of the giant wall which now spans the river was made. Engineers reported that Philae would be swamped completely; thereupon the archæologists, the tourists, and the artists rose to object. Monumental petitions were signed and all manner of recommendations were made for the protection of these beautiful ruins. In compliance with the prayers of these agitators, the contractors modified their plans with a view to keeping the chief monuments of Philae above the water. The chief fear was felt for "Pharaoh's Bed," the beautiful pavilion built for Augustus but completed by Trajan, for it is mainly built upon a terrace of Nile mud and may crumble. To obviate this risk, all of the important parts, including this kiosk, have been carried on steel girders or underpinned down to rock, or, failing that, to the present saturation level. Archæologists have not at all been reassured by the precautions which the contractors have taken. But even should the cost be complete obliteration of these famous monuments, who can say that the price is too high or the sacrifice unwise? A link with ancient Egypt may disappear, but a new state will be carved from the wastes of the desert.

REORGANIZING INDUSTRIES: A NOVEL PROFESSION

GREAT FACTORIES STUDIED BY A PRODUCTION ENGINEER WHO INSTALLS ECONOMICAL METHODS — A MILL WHICH INCREASED PRODUCTION FORTY PER CENT.—THE STORY OF THE PIONEER EXPERT

BY

MINNA C. SMITH

AN important Pennsylvania manufacturing firm, discontented with their condition, invited a man from New York to inspect their plant. He went. He had access to the private records, to the most secret information of the firm. He studied the economy of the mills. He watched the men at work. He asked questions. For weeks the study went on. And when it was finished, he was asked to suggest improvements. He was the first production engineer, an expert industrial critic, who had given the plant the attention a trainer might give an athlete preparing for a race. As a result of his report, the methods of manufacture in the plant were radically changed.

Sixty tons of material had been handled daily fifty-one times. By changing the course of the material through its various processes, the engineer cut down the handling to thirty-seven times, with a resultant saving that surprised the president, the directors and the general manager. They were men who knew their business, but they had had no idea that any outside help could so reduce their expenses. Thus production engineering, the youngest of the applied sciences, received recognition.

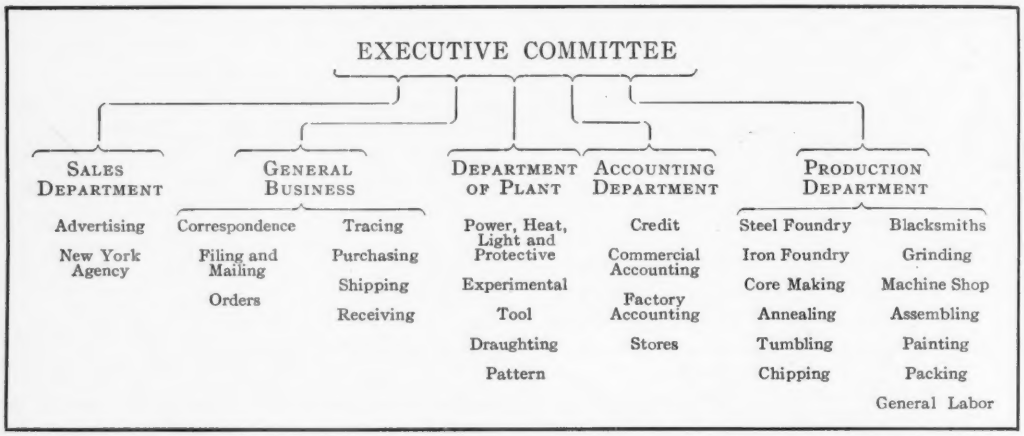
The production engineer was requested to rearrange the schedule of wages at a steel mill. When he regulated it, not by tonnage alone, but by groups of steel products according to quantities and shapes, the resultant rates increased the productive capacity of the mills from five to forty per cent., decreased the cost of production and increased the wages of the men.

He was called to an electric equipment factory which was growing so fast that its managers not only did not know the amount of their expenses, either in total or in indirect costs, but could not keep in touch with the general routine of the days. The expert asked questions and was given full details. He was introduced to every official, every head of department, every clerk; and he asked each one for typewritten suggestions. He found that the huge physical growth of the factory had overtopped its intellectual and nervous organization. The organization needed a clear definition of duties and responsibilities in the various offices—a more highly organized faculty. The specialist reported a special system, unified, yet so flexible that the work in any department can now be expanded or contracted without affecting the general plan. Thirty-one departments of the executive and operating force were ordered, instead of fourteen. There could henceforth be no clashing of authority, no men receiving one order from one department and another order from another. All communications about the general organization were authorized to appear in executive orders from the president of the company, who is also general manager. The names of all officers, or heads of departments, were put at the head of every executive order, and each head of a department was made responsible for notifying his associates, who in turn were made personally responsible to him. A series of executive notices was posted insuring order of a high degree and making certain the prompt return of all reports and data. One man was made responsible for all the accounts of the company, so that uniformity might be developed in recording all the performances of the plant. The authority for giving orders was centralized. Provisions were made for definite recording of orders for material; and complete and accurate means of communication within the factory were insured. An accurate

system of labor records for all employees was effected, insuring the charging of material and labor expended in the course of production. Centralization of authority stopped overstocking. The control of incoming and outgoing material was given to the same central authority. The chart shows a typical factory organization:

of the investor and the laborer. An employer, knowing the productiveness of individual workmen, has a basis for increasing pay for better work. An absolutely accurate system of cost is the only means for showing accurate current earnings. Manufacturers will be able to let men earn more when with increase of output there is no increase of fixed charges,

CHART OF RESPONSIBILITIES



A full chart would contain beneath each of those departments the name of the man held responsible for the working of that department — thirty-one men besides the five managers who make the executive committee.

The nervous system of an industry is composed of records. The nervous system of the electric equipment factory was toned up. The factory is making its product much more rapidly than before; and despite the growth of the business the heads of the concern can now keep in touch with all its details.

James Newton Gunn, the pioneer in this novel profession, says that the production engineer conceives of a well-equipped factory as a man trained for his many duties, skilled in many ways, who has each member of his body developed and working in harmony with the others—all controlled by the intellect. The factory intellect must have a system of records and machines and men, serving as the nerves, bones and muscles. Cost-keeping, which is synonymous with maintaining the nervous system, has been found to be a function which an outside man of professional standing and unquestioned integrity can serviceably fulfil.

Mr. Gunn is convinced that impartial scientific investigation of *all the facts* of any business and the solving of the problem of cost must make clear the economic relations for both capital and labor suffer from ignorance. Here the production engineer becomes useful. His business is scientifically to make a producing unit of any business, whether manufacturing, mining or other productive industry.

Weekly conferences of all heads of departments, and often in times of rush daily meetings of foremen, are part of the harmonious working of the principle Every workman is constantly represented in conferences with the heads of the business. A minor foreman has been known to come to five weekly conferences in succession before he took his turn to say his say. It takes time for such a man to realize that his trained knowledge is considered of commercial value in conference. The whole system tends toward social ends, toward the introduction of souls into corporations.

But who is Mr. Gunn? How did he become a production engineer? He was born in Ohio. After he was graduated from the high school at Springfield he went to work in a factory there that made portable forges and grinding machinery. The president of the

company encouraged the young man to develop any ideas that came to him in the work of the factory. He worked over a system of piece rates on forges, he assembled costs, he systematized the orders and gathered the expense items of the factory on cards. Soon the boy was able, on the cards he cut out and wrote upon, to show the exact cost of each article manufactured, collating all the items of indirect expense. He counted window-cleaning and postage stamps, repairs and the work of carrying material around in the shop, into the cost of producing a forge. He was at work in the glimmerings of his first great idea. He proved the possibility of absolutely accurate distribution of every item of indirect expense. Next he had an opportunity as cashier of a Southern railway system to formulate ideas regarding the workings of a railway organization. He had begun to mature ideas showing the scope of the use of cards of varying contours for recording facts, the now familiar tab cards, which he presently patented. In 1893 he went with his tab cards to Boston and later to London for the Library Bureau. This gave him a chance to study manufacturing methods in England and France. When he returned he introduced cards in the assembling of labor and material costs in large factories, and thus came to know more fully the practices in American factories. He was soon able to suggest to one factory an improvement in methods learned in some other factory whose manufactures were entirely different, for the solution of a problem having to do with manufacturing leather belts would sometimes suggest the solution of a problem in rolling bars of steel; the grouping of orders by sizes which had resulted in a twenty-five per cent. increase in the capacity of a steel foundry suggested the solution of a problem in the distribution of work to different looms and the multitudinous orders for different patterns in a silk mill. He came to understand methods and management as a whole, and he was and is, as a production engineer must be, an open-minded student of economics.

THE TRAVELING POST-OFFICE

THE SUGGESTION OF IT BY A MOUSE'S NEST—THE REVOLUTION IT HAS CAUSED IN THE HANDLING OF MAIL MATTER — THE LOYALTY AND PLUCK OF THE MEN IN THE SERVICE

BY

FORREST CRISSEY

Illustrated from photographs by Allen Ayrauet Green

GREEN BAY, in the Lake Superior region, was an important distributing point on the old postal route, and its post-office was often crowded with mail pouches, the contents of which must be rehandled and sent forward to the tributary towns in the heart of the wild northern country. Sometimes weeks were required to repouch the glut of mail which accumulated at the Green Bay office, and the inland hamlets were compelled to await the slow process of forwarding which the inadequate method of rehandling involved. One day the dog team which hauled the mail from Green Bay to the little settlement of Ontonagon was unloaded at the latter destination and the pouches unlocked. Among the letters which were tumbled out upon the distributing table were a mother mouse and a litter of young!

Almost a month later Maurice Crean, route agent, told this story to George B. Armstrong, then assistant postmaster of the Chicago post-office. Mr. Armstrong laughed heartily at the incident, then grew suddenly thoughtful and remarked:

"Something must be done to move the mails faster—so fast that mice cannot make their homes in the pouches and raise their families there while in transit. It will not do to have the mails turned into mouse nests. I am going to devise a plan which will do away with such a possibility."

As a mere passing measure, the foot messengers with dog sleds were supplanted by mounted horsemen; but from the moment when Mr. Armstrong heard the story of the mice in the Ontonagon mail pouch, in 1856, until he had devised and perfected the railway postal system, he made its problems the chief concern of his life.

Today the famous Burlington fast-mail train, the "greyhound" of the service, is composed exclusively of mail cars, generally six in number, and these sometimes carry as much as 150 tons of letters, papers and parcels —the equivalent in weight of 2,100 persons, or the number of passengers ordinarily carried in forty-two coaches. Contrast this burden with the volume of mail which passed across the continent under the surveillance of the route agent of ante-bellum days and the stride of the service is more easily appreciated. The distance from Burlington, Iowa, to Chicago, 205 miles, has been covered in 188.5 minutes, or an average speed of 65.5 miles an hour. The highest fast-mail speed for a short distance recognized by the official records is an average of 75 miles an hour for 32.5 miles, between Bristol and Meriden, Connecticut. This run was made May 1, 1900. For still shorter distances an average of 85.5 miles an hour has repeatedly been made.

Resting in a small iron box in the office of George B. Armstrong, Jr., are a score or more of precious documents from the pioneers of the Railway Mail Service. In the lines of these narratives may be traced every step in the development of the present highly perfected system which gives employment to more than 10,000 men and is expanding at a marvelous rate under our national prosperity. It is the expectation of the department that before the close of the next five years the payroll of the Railway Mail Service will contain the names of 13,500 employees.

Both the Civil War and the war with Spain exerted a powerful influence on the Railway Mail Service of the United States. Undoubtedly the great blockade of soldier mail in the sixties made the necessity so great that not only did it move Mr. Armstrong to focus his ideas into a thoroughly practical plan, but also enforced upon the official ears of those in authority at Washington the fact that radical steps must be taken to facilitate the handling of the mails, for soldiers in camp, and women and children waiting at home for news from the battlefield, the bivouac and the hospital, were equally impatient at delays. Tons of letters were handled in the main distributing offices every week, and tons of papers were heaped up never to be redistributed and sent forward. A clerk employed in the Chicago office at that time has left a written statement that "the vast surplus of mail accumulated in the distributing department of our office during the months of December, 1863, and January and February, 1864, was estimated to be 500,000 letters."

Mr. Crean relates that at the outbreak of the Civil War he was sent to take charge of the "western room" at the Cairo post-office, which had been made a "distributing station," because of the great volume of army and navy mails centering there for the western military forces. During the four weeks when army movements made this the most important office in the State, Mr. Armstrong spent all his time in Cairo working out the advance steps which led him to complete the "traveling post-office." He worked day and night, but seemed never too tired to be enthusiastic, and he "spent many a sleepless night in his room in the St. Charles Hotel elaborating his plans." These he perfected "so completely that a letter mailed in Chicago for any one of the western or southwestern armies reached its terminal point as soon as a passenger on the fleetest Pullman could reach it; so that a letter for Admiral Porter in the War Department in Washington was made up in the Chicago distributing post-office in a separate pouch and reached his flagship by way of the Illinois Central road as soon as the Admiral's gunner himself could have reached him from this city." This he did by a series of direct pouchings, avoiding as much as possible the intermediate services at distributing post-offices.

Mr. George B. Armstrong, Jr., his father's first amanuensis, in recounting the obstacles against which the founder contended in securing the confidence and support of the public and the department, writes that "the business men of Chicago, with many of whom my father had frequent conferences, could not see how the benefits of the plan would offset the risk of losing the letters while in transit." He also relates that three letters written under dates of May 10th, May 14th and June 10, 1864, and addressed to the Third Assistant Postmaster-General, were the corner-

THROWING LETTERS INTO THE LETTER CASE ON THE FAST MAIL

stones of the system, as they covered the entire field of postal reform, urged the abolition of "post billing" and of "wrapping," and so ably set forth the advantages of the traveling post-office that the business men and the Department at Washington were aroused. The energy with which Mr. Armstroug pursued his campaign is interestingly attested in a document written by James H. McCausland, in which this gentleman states that, although a quarrel with men in political power resulted in deposing him from a position of route agent, Mr. Armstrong engaged him to do missionary work among railway presidents and officials in behalf of the traveling post-office. "I believe to this day," writes Mr. McCausland, "that he paid me out of his own pocket, for I am quite sure that he had no authority from the government to employ me." One of the most significant and notable orders ever issued by the department was that which Postmaster-General Montgomery Blair sent out, dated July 11, 1864, giving Mr. Armstrong authority to have an experimental traveling post-office equipped and operated. Mr. George L. Dunlap, then General Manager of the Chicago and Northwestern Railway, was the only railway man who showed a friendly interest in this scheme and did not condemn it without trial. Through his interest an unused baggage car was equipped with a rude table and "letter case." The latter, as at first designed by Mr. Armstrong, was circular in form. Asa F. Bradley, the route agent selected by the founder of the service as the first chief clerk of a traveling post-office, suggested that the case be angular instead of circular, as the eye could more readily locate the various boxes under this arrangement. His experience as a surveyor told him this. The change was immediately made in the design and a serious defect avoided.

The first traveling post-office made its initial trip over the run from Chicago to Clinton, Iowa, about September 1, 1864. Its crew consisted of Asa F. Bradley, Percy A. Leonard and James Converse; the first handled the papers and Mr. Converse the letters. Of that historic run Mr. Leonard has left the following record:

"The letters were stacked up in a generous pile on the case. The principal stations only had been put in separate packages. The first series of stations, Austin, etc., were put in

a package numbered one. Distribution began about an hour before the train was due to leave, but because the arrangement of the boxes was somewhat strange to the distributor, he carried a few letters past some of the nearer stations on the first trip.

"It required but a few trips, however, to demonstrate the immediate success of the scheme, and soon arrangements were perfected for introducing the system on all the railway lines leading out of Chicago, more particularly those running east and west. It was, however, the summer of 1865 before the railway post-office system received the official sanction of the department, and it was introduced on the Northwestern, Rock Island, Burlington, Michigan Southern, Fort Wayne and Michigan Central railroads in the order named.

"In the spring of 1868, when the completion of the Union Pacific made an overland mail feasible, two sets of clerks were put on the Rock Island road, one of which handled the California and overland mails exclusively and the other the local mails between Chicago and Davenport, Iowa. This required an entire car, something like the present postal cars, and greatly enlarged the sphere of the railway post-office. From this small, crude beginning has grown the present gigantic railway mail service."

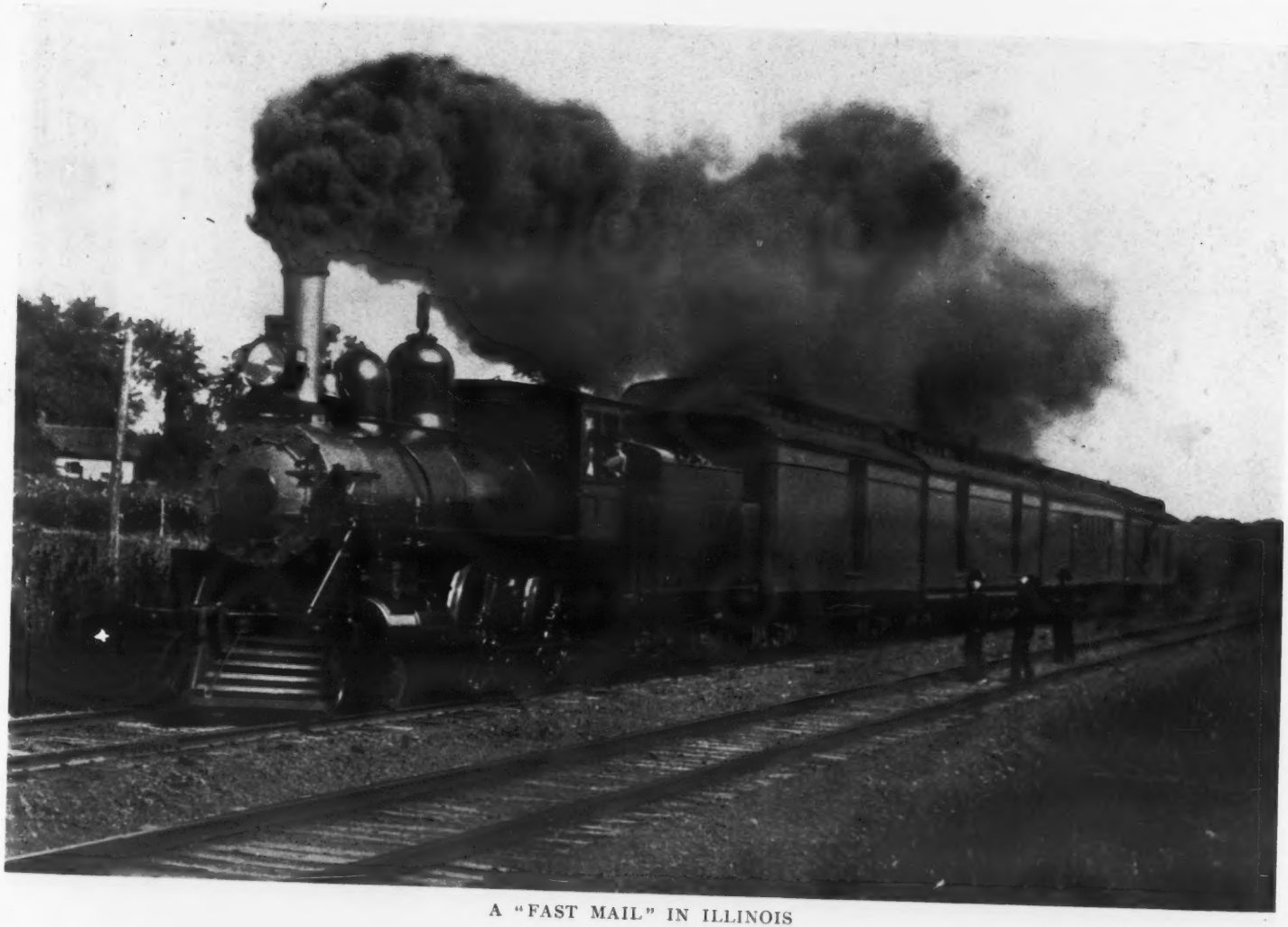
Perhaps the first significant step forward, after the installation of the "traveling post-office," was the invention of the "express mail" by Mail Clerk S. F. Champion.

The people at Lockport, Illinois, had asked him to send their mail on an accommodation train from Chicago; and Lemont, eight miles north of Lockport, asked a similar privilege. It could not be granted. He arranged accordingly to have the Lemont mail sent in the Lockport pouch, and at Lockport transferred to a train running back to Lemont, thus putting a mail into that town which otherwise would not have reached there until the next morning. "A few days later," says Mr. Champion, "Mr. Armstrong slapped me heartily on the back and exclaimed: 'Champion, you've given me a good idea. Make me a list of all the offices on your run where the mail trains meet the express trains.' Within twenty-four hours the 'express mail' was born and continued until night service took its place."

For some time after the installation of the Railway Postal Service it was the practice to accompany each package of letters with a "post bill" or memorandum of its contents, classified as paid, unpaid and free matter. These bills were made out in duplicate, the original accompanying the package to its destination while the duplicate was sent to Washington. This was on the theory that the postmaster or mail clerk opening the

READY TO SNATCH A SACK WITHOUT STOPPING

POUCHING THE LETTERS



A "FAST MAIL" IN ILLINOIS

CATCHING THE MAIL SACKS FOR A QUICK TRANSFER

package would check off the letters and then forward the bill to the department at Washington to be compared with the duplicate. Tons of these bills accumulated at headquarters and were destroyed without any attempt at their comparison. This was before the days of the prepayment of postage. Under the Act of March 3, 1863, prepayment of postage was required by means of postage stamps affixed, which naturally did away with the "post bill."

Even more burdensome was the system of wrapping each package of letters in brown paper and readdressing it to the post-office of destination. If the package consisted of one letter only it was not permitted to go forward without its wrappings. Each car was obliged to carry huge stacks of this manila paper, and the mail clerks stood knee-deep in the wrappings from opened packages. Here was another dead weight upon the service which Mr. Armstrong at once detected and abolished, substituting the present system of tying letters for the same destination into a neat package with a plainly addressed envelope uppermost.

In a document written by James E. Stuart, an inspector in the Post-Office Department, is an account of how the modern "route scheme" was introduced into the service.

"In those days," writes Mr. Stuart, "no schemes of distribution were furnished as at present. Each clerk secured for himself an alphabetical list of post-offices, and opposite each office he would mark the route it should be 'thrown to' from his own line. There was, therefore, no systematized scheme governing the distribution of mail matter. Experience quickly demonstrated the value of the route scheme and soon thereafter others were prepared for the various States and finally the official scheme book was adopted by the department."

This volume is upon the distributing table of every railway mail clerk and may be described as his "city directory," for it enables him instantly to locate any post-office in a given State and informs him of the various routes by which it may be reached.

"The facing slip," continues Mr. Stuart's narrative, "now used to test the efficiency of each clerk and to enable a record to be kept of all errors in distribution, was the outgrowth of an experiment of my own. While I was a postal clerk on the line from Boone to Council Bluffs I conceived the idea of placing a slip of paper the size of an envelope upon each mail package which I made up for other lines, in order that the clerks who handled these packages might note on these slips the

errors of distribution and return them to me. By this means I was advised of my own errors and enabled to correct them and also to perfect my distribution scheme. This label slip was similar to the one now in use, and I had the pleasure, a few years after my first experiment with the slip, of seeing it officially adopted for the entire service."

It would not be altogether an easy task, perhaps, to find a country village which has not contributed at least one young man to the Railway Postal Service, and it certainly would be decidedly difficult to name one which has not furnished a candidate for such a position. The number of young men who compete is concisely shown by the following table:

	Took Civil Service Examination	Passed Examination	Made "Regular Substitutes"
1896	5,013	3,127	655
1897	6,431	4,710	381
1898	4,799	3,828	698
1899	5,220	4,319	774
1900	5,115	3,844	736
1901	5,090	3,593	933

This tells the whole story with the exception of adding that between ninety-eight and ninety-nine per cent. of the "regular subs" are appointed to full and regular clerkships. There are five grades of clerks, the lowest receiving $900 a year, while the maximum salary is $1,400. While the Second Assistant Postmaster-General is really the official head of the Railway Postal Service, the General Superintendent is the active executive officer of the system. In 1901 the clerks distributed more than 14,181,224,420 pieces of mail.

THROWING OUT THE MAIL SACKS AT A TRANSFER STATION

TRANSFERRING THE MAIL FROM ONE TRAIN TO ANOTHER

That this vocation has its peculiar perils cannot be denied, and a constant effort is being made to diminish the liability to accident through the building of stronger and safer mail cars, the construction of which is now under government supervision. The archives of the service hold so many records of almost miraculous escapes from sudden death that the clerks are naturally inclined to feel that in some manner they will be delivered from destruction, although the position of the mail car in a train gives them the maximum of exposure to accident.

One clerk was busy throwing mail in a combination smoker and baggage car, when suddenly, without an instant's warning, he felt the car leap from the track and heard a terrific crash. When he regained consciousness the wreck presented this chaotic condition: the two forward cars had been plunged down a seventy-foot embankment; the combination car landed in an upright position with the rear trucks on the roof, every seat in the smoking compartment being utterly demolished, while on the floor of the mail compartment was a huge angular stone weighing not less than half a ton. How the mail clerk escaped unhurt will always be a mystery.

There is probably no department of the government service in which a higher standard of devotion to duty is maintained than in this. During a heavy freshet on the Susquehanna River, in 1890, all bridges were swept away and the railroad tracks along the banks practically destroyed. Four mail clerks remained in their car until the water rising and flowing through the doors compelled them to take to an improvised raft, which consisted of pieces of floating sidewalks and other débris of the inundation, lashed together. On this frail craft they put their pouches, and carefully propelling by poles along with the current, gained the post-office, a mile away. They found this abandoned, with eight feet of water in the street at that point. They were almost exhausted and their condition was precarious. Finally, however, they were rescued by boats and taken into houses through the second-story windows. The letter mail was all intact and in fairly good condition.

Some time ago the "run" on a Western road was "short" a clerk because of sickness. An official of the service happened to be on the train and volunteered his services. For fifteen hours he stuck to his work at the letter case. In the journey of more than five hundred miles he had only a sandwich or two for food, and stood on his feet without relief. There are other instances on record where entire crews have stood to the work without food for twenty-four hours.

But the last and the best word which may be said of the Railway Postal Service of the United States is that it perpetuates the spirit of its founder, and maintains to a remarkable degree the devotion to duty, the pluck and the unflagging perseverance with which George B. Armstrong endowed it.

A NAP IN THE STORAGE CAR AFTER A STRENUOUS DAY

SALTAIR PAVILION: A FAMOUS BATHING RESORT
One of the few losing investments of the Mormons

THE MORMONS: A SUCCESSFUL COÖPERATIVE SOCIETY

BY PRACTICAL COÖPERATION THE VARIED BUSINESS ACTIVITIES OF THE MORMON PEOPLE CONTROLLED BY THE CHURCH—"JOSEPH F. SMITH, PRESIDENT," UNIVERSAL IN THE MORMON COUNTRY—THE ALMOST INFINITE SCOPE AND POWER OF THIS PRACTICAL RELIGIOUS PATERNALISM

BY

GLEN MILLER

FORMERLY UNITED STATES MARSHAL IN UTAH

Illustrated from photographs by The Johnson Company, Salt Lake City

"WITH polygamy abandoned, the Mormon Church, I presume, is slowly going to pieces."

That was the gist of a hundred remarks I heard during a recent trip east. It represents a very prevalent impression held outside of Utah regarding the "Mormon question."

The Mormon Church isn't slowly going to pieces, or going to pieces in any way at all. On the contrary, it is, comparatively, growing faster in numbers and in power than any other church of the land. It is the widest awake, most vigorous and most aggressive religious denomination in America today. The chief source of its strength can be defined in two words—practical coöperation. For the Mormon people have evolved what has so long eluded economists and philanthropists—a successful coöperative society.

Consulting the directories of a large number of the most important corporations in the State of Utah, you will find at the head of each the words "Joseph F. Smith, President." Joseph F. Smith has been President of the Mormon Church since October 17, 1901. His election to the presidency of every one of

WEIGHING SUGAR BEETS AT THE LEHI FACTORY

these corporations has occurred since that date. As a matter of form, a separate election takes place in each company for president; but an election to the presidency of the Mormon Church is equivalent to an election to the presidency of these companies.

Joseph F. Smith, prophet, seer and revealer of the Mormon Church, presides over great mercantile institutions, factories engaged in producing the staples of life, railroads, power-plants, commercial and savings banks, implement warehouses, coal mines, pleasure resorts, educational institutions, book stores and daily newspapers and magazines. The potency of those words, "Joseph F. Smith, President," is known to every business man in Utah. The very least significance that can be attached to them is that the institutions over which Mr. Smith presides have the good-will and friendly interest of the church. The larger interpretation is that these institutions render allegiance to the Mormon Church and in return receive its protection and patronage. The concerns of which I speak are private corporations, organized under the general statutes of the State, engaging in business for profit. As a matter of fact, President Smith personally gives but little time to the affairs of these corporations of which he is the nominal head. His private ownership in any of these institutions may be taken to be very small. The institutions of which he is presi-

BOYS TESTING MOTHER BEETS TO BE PLANTED FOR SEED

The seed was formerly brought from Germany; now it is raised in Utah

Executive—Directors:

JOSEPH F. SMITH, Prest.
JOHN R. WINDER, 1st Vice-Prest
L. S. HILLS, Treasurer.
T. G. WEBBER, 2nd V. P.
JOHN J. BANIGAN, W. S. McCORNICK,
W. J. CURTIS, RUDGER CLAWSON,
GEORGE ROMNEY.

GENERAL COUNSEL,
LE GRAND YOUNG.

UTAH LIGHT AND POWER CO.

Administrative:

ROBERT S. CAMPBELL,
Gen'l Manager and Secretary.
R. F. HAYWARD,
Electrical Engineer.

Installation:

	ELECTRICAL	GAS:
SALT LAKE,	WATER—2400 H. P.	SALT LAKE, 430 M CU. FT. DAILY.
OGDEN,	STEAM—1500 H. P.	OGDEN, 60 M CU. FT. DAILY.
	WATER—5000 H. P.	

SAVE YOUR MONEY

And when you get a dollar, deposit it with

Zion's Savings Bank & Trust Co.

JOS. F. SMITH, President. GEORGE M. CANNON, Cashier.
ANTHON H. LUND, Vice-Pres. LEWIS M. CANNON, Asst. Cashier.

The

State Bank

of Utah.

Jos. F. Smith, President. Chas. S. Burton, Cashier.
William B. Preston, Vice-President. H. T. McEwan, Asst. Cashier.

JOS. F. SMITH, Pres. Salt Lake City.
L. A. CLAYTON, Sec'y & Treas. Salt Lake City.

Inland Crystal Salt Co.

SALT LAKE CITY, UTAH.

N. W. CLAYTON, Manager.

"IF YOU ARE PROUD OF YOUR HORSE HITCH HIM TO A WAGON THAT WILL NOT DETRACT FROM HIS VALUE."

Z. C. M. I.

, Importers and Wholesale Dealers in General Me

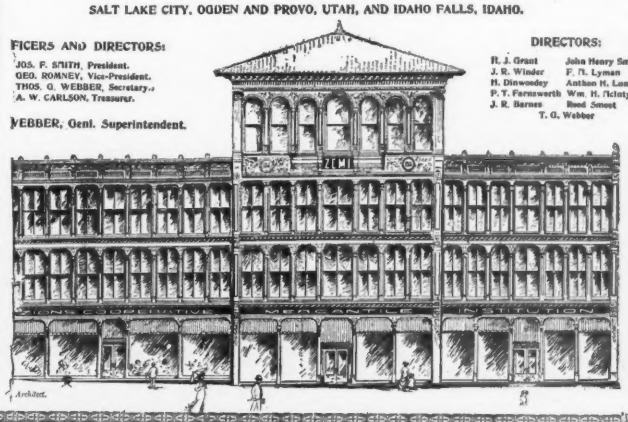
SALT LAKE CITY, OGDEN AND PROVO, UTAH, AND IDAHO FALLS, IDAHO.

FICERS AND DIRECTORS:
JOS. F. SMITH, President.
GEO. ROMNEY, Vice-President.
THOS. G. WEBBER, Secretary.
A. W. CARLSON, Treasurer.

VEBBER, Genl. Superintendent.

DIRECTORS:

H. J. Grant	John Henry Smith
J. R. Winder	F. H. Lyman
H. Dinwoodey	Anthon H. Lund
P. T. Farnsworth	Wm. H. McIntyre
J. R. Barnes	Reed Smoot
T. G. Webber	



Architect.

Now if you are not proud of your horse, and your horse is not more "toppy" or more showy than the above equine, we simply cannot sell you a vehicle that will be in harmony with him.

But we hope you have a fine piece of "horse flesh," and that you will give us an opportunity to match it with a fine and stylish vehicle.

We are giving more for the money than any other vehicle concern, as our numerous patrons will attest; we are anxious to enroll YOU as one of our well satisfied patrons.

Consolidated Wagon & Machine Company

JOSEPH F. SMITH, President — STATE STREET
GEO. T. ODELL, General Manager — SALT LAKE CITY, UTAH

Utah Sugar Co.

JOSEPH F. SMITH, President.
THOMAS R. CUTLER, Vice-President and Manager.
HORACE G. WHITNEY, Secretary and Treasurer.

BOARD OF DIRECTORS:

JOSEPH F. SMITH, THOMAS R. CUTLER, HEBER J. GRANT, THOMAS R. WEBBER, WM. B. PRESTON, JAMES JACK, W. S. McCORNICK, WM. H. McINTYRE, JOHN C. CUTLER, BARLOW FERGUSON, GEORGE H. TAYLOR, JOHN R. WINDER, JOHN HENRY SMITH.

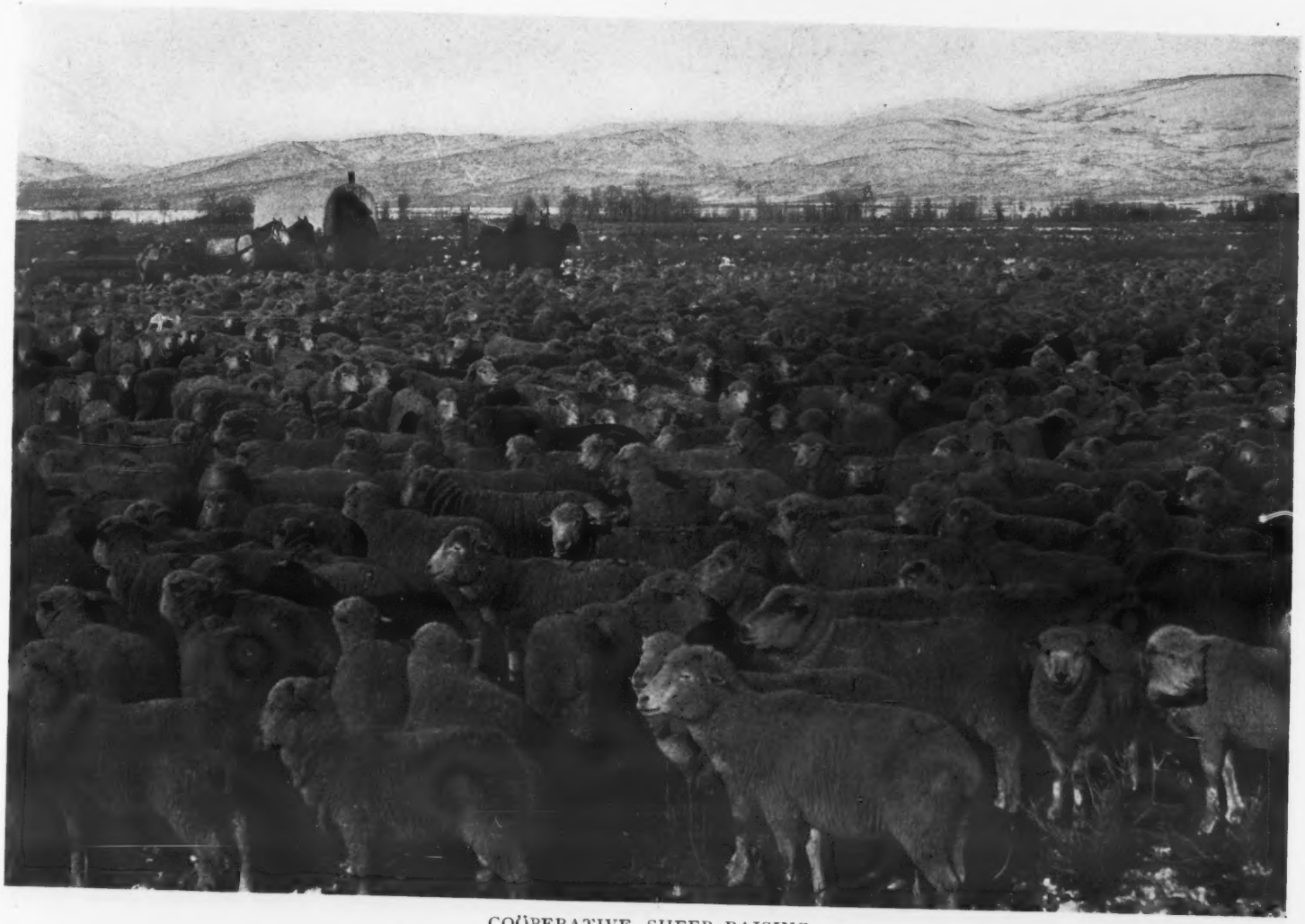
A GROUP OF ADVERTISEMENTS SHOWING THE MANY ENTERPRISES OF WHICH JOSEPH F. SMITH IS PRESIDENT

THE BEAR RIVER DAM OWNED BY THE UTAH SUGAR COMPANY

A MORMON RANCH HOUSE

dent are really under the direction of men skilled in the lines of trade represented, but all under the parental influence of the church.

Foremost of these great institutions or corporations is Zion's Coöperative Mercantile Institution. This great department store, doing a large wholesale and retail business that extends to every Mormon settlement, was established by Brigham Young in 1868. Over its main entrance on Main Street, Salt Lake City, is the all-seeing eye, emblem of Mormon authority, and encircling it are the words "Holiness to the Lord." Brigham Young was its first president, and each Mormon president in turn has been elected president of the Z. C. M. I. Every director since its establishment, with the exception of one, whose family belongs to the church, has been a Mormon, and the bulk of its capital, $1,077,000, is in Mormon hands. One-tenth of the salaries of its employees is given to the church. The store has steadily paid large dividends, and its stock is quoted at sixty per cent. above par. Its wholesale business is mostly with the "Coöp." and other Mormon

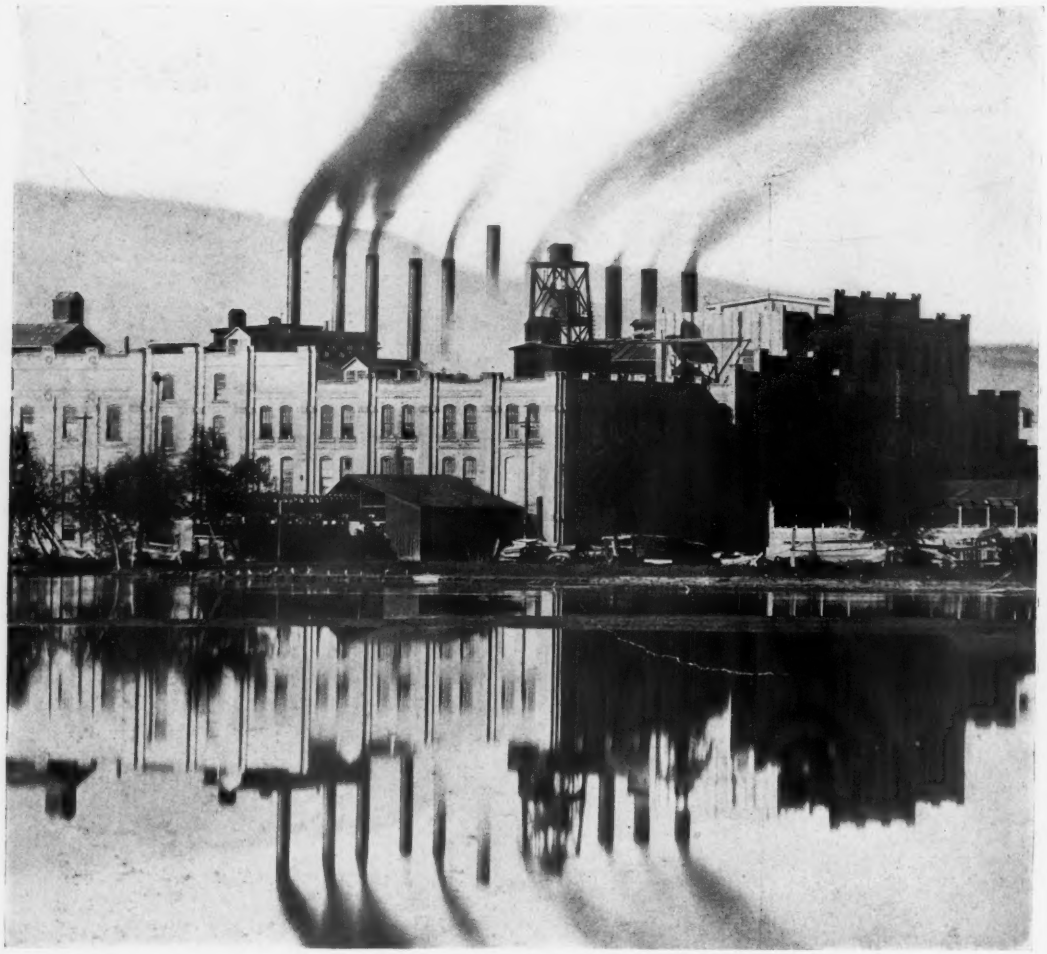


COÖPERATIVE SHEEP RAISING

Each man's sheep are branded and the ranch expenses are divided *pro rata*

stores of the smaller towns and settlements. The annual sales are over $4,000,000. In local parlance "The Coöp." always refers to Zion's Coöperative Mercantile Institution. Strolling through its many aisles, the words "brother" and "sister" will be heard oftener than any others, being the greetings of clerks to patrons. Naturally, the institution is glad to get Gentile patronage; but the bulk of its patronage is within the church. Large branch stores of the Z. C. M. I., as it is commonly called for brevity, are located at Ogden and Provo—next to Salt Lake City, the largest cities of Utah; and at Idaho Falls, Idaho.

President Joseph F. Smith also figures at the head of the Utah Sugar Company, whose capital stock of $2,000,000 sells in the open market at more than fifty per cent. premium. This company owes its existence directly to the Mormon Church. President Wilford Woodruff officially appointed the original committee for the Lehi sugar factory, with authority to solicit subscriptions from the Mormon people. This was the first and it is the largest of the factories owned by this company, which controls the sugar output of Utah. "Patronize home industries" was one of Brigham Young's favorite injunctions. Obedience to it was never more munificently rewarded than in the sugar industry. The company has returned to the stockholders almost their original investment in the way of stock dividends, besides paying an annual



THE COÖPERATIVE SUGAR FACTORY AT LEHI
22,000,000 pounds of sugar produced this year

PRESIDENT JOSEPH F. SMITH OF THE MORMON CHURCH

THE HEAD OF THE GREAT MORMON COÖPERATIVE ENTERPRISES

twelve per cent. cash dividend for a series of years. The wonderful profits of the undertaking attracted the cupidity of the Sugar Trust, to appease which the stockholders parted with a half-interest in their holdings. The presidency continues to rest in the hands of Joseph F. Smith. The sugar company has been a large dealer in irrigated lands. It owns at present over thirty thousand acres of land and the finest irrigation canal in the State of Utah, taking water from the Bear River by means of a dam constructed in the Bear River cañon. Every year this company contracts with farmers—ninety-five per cent. of whom are Mormons—for the beet output of their farms. The cultivation of the sugar beet has been the means of utilizing the labor of children in summer time; and as the Mormon family is proverbially large, it can easily be understood how peculiarly valuable this industry is to Utah. This year 22,000,000 pounds of sugar will be produced by the Lehi factory alone. The sugar beet has in recent years done as beneficent a work for the Mormon farmer as alfalfa did twenty years ago, the two products today forming the staple and profitable crops of the Utah "ranch."

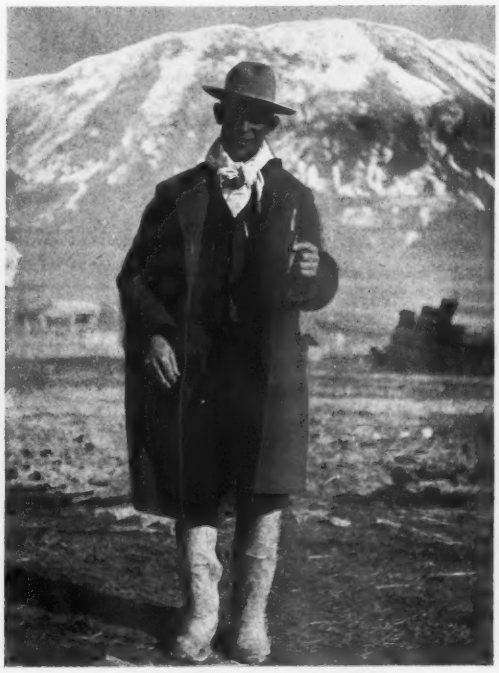
Another of the great industries to which the name of Joseph F. Smith is linked as presiding officer is the manufacture of salt. The Inland Crystal Salt Company has its salt fields and refinery on the shore of Great Salt Lake. Salt water is pumped from the lake to the flat alkali lands bordering the shore. The water is confined by dykes, and precipitates the salt as the water evaporates under the rays of the summer sun. The salt is scraped up and piled in pyramids and then carted to the refinery and made ready for the table. This company furnishes the larger portion of all the salt used in the Rocky Mountain and Coast country.

THE SALT BEDS OF THE INLAND CRYSTAL SALT COMPANY

Closely associated with the salt company is another corporation which is also headed by the Mormon president. The Salt Lake and Los Angeles Railway is not so great a system as its name might indicate. It runs from Salt Lake City to Great Salt Lake, a distance of fifteen miles. Here are the salt works from which it gets the bulk of its freight traffic. Probably none of its commercial enterprises are more closely controlled by the church than this railway, whose name has figured unpleasantly in politics of the State in days not remote.

At the western terminus of the Salt Lake and Los Angeles Railway is Saltair Pavilion, probably the finest bathing resort in the world. This structure cost $350,000 and is as nearly under the sole ownership of the church as any institution to which the name of "Joseph F. Smith, President," is attached. Brigham Young's old saying, "The people must be amused," has been perpetuated through theatres, concerts and out-of-door resorts to which the church has stood sponsor. By far the most pretentious of these amusement places is Saltair, the central pavilion

SALT LAKE THEATRE
A box is always reserved for Joseph F. Smith



A MORMON SHEEP HERDER

of which is a duplicate in shape and dimensions of the famous Mormon Tabernacle. The resort has been one of the few investments on which the church has lost money.

Salt Lake is the distributing point for most of the wagons and agricultural implements used in the inter-mountain country. Overshadowing every other institution of this sort is the "Consolidated Wagon and Machine Company," with a capital of $1,160,700, of which Joseph F. Smith is the president. The vast quantity of implements handled by this company may be understood when it is stated that whole train loads of one kind of implement have been sent from the factory to this house. As the hardware business is within the domain of Zion's Coöperative Mercantile Institution, the implement company keeps out of this department. The Consolidated Wagon and Machine Company, like Zion's Coöperative Mercantile Institution, has branches in other cities in Utah and Idaho.

Commercial banking finds Joseph F. Smith at the head of the State Bank of Utah, and

THE TITHING STORE
Here the faithful deliver one-tenth of their produce to the church

"DEPOSIT HERE"

The statue of Brigham Young and the Mormon financial institutions

savings banking finds him at the head of Zion's Savings Bank and Trust Company, both located in the same building and the same room. Opposite the corner of this building, at the intersection of Main and "Brigham" Streets, stands the bronze figure of Brigham Young, with outstretched hand and finger pointing in the direction of these financial institutions. A wag, having in mind actual conditions, has represented the great prophet on his lofty pedestal pointing toward these banks as saying, "Deposit here." Be that as it may, Zion's Savings Bank and Trust Company has a larger deposit than all the other savings institutions (twenty-four) of Utah combined. The State Bank of Utah has until recently had the Governor of the State, a Mormon, as its cashier, as well as the president of the Mormon Church as its president. The advantage of church connection to financial institutions, not only in securing deposits, but in warding off danger in times of panic is not to be lightly estimated. Not a Gentile figures in the directory of either institution. Both banks have assisted in financing numerous church propositions.

The Consolidated Light and Power Company, whose main offices are located between Zion's Savings Bank and Trust Company and Zion's Coöperative Mercantile Institution, also has Joseph F. Smith for its president. It takes power from the Weber River, four miles north from Ogden, and transmits to Salt Lake City all the power and light used in the city, including that used by the street car system. It also furnishes light and power for Ogden.

The *Deseret Evening News* is the official organ of the Mormon Church. It now occupies, opposite the Mormon temple on one corner and the two Mormon banks just mentioned on the other, the handsomest and most costly business block in Utah. It is not necessary, perhaps, to mention that it has for its president Joseph F. Smith. It is managed by Horace G. Whitney, who is also secretary of the Utah Sugar Company. Indeed, it is interesting to observe how the same directors weave in and out through the companies over which the Mormon president presides. The *News*, all editions considered, has a larger circulation than any other intermountain newspaper.

Scarcely a town in Utah or a ward in any of the Mormon towns but has its coöperative stores. The "First Ward Coöp.," "Second Ward Coöp.," and so on through the thirty-two wards of Salt Lake, are small outlying stores whose names point with certainty to the fact that they are owned by Mormons. These small "coöp." stores are the patrons of the big "coöp." stores. Still other names indicate the variety of directions that coöperation takes: "Coöp. Meat Market," "Coöp. Lumber Company," and many others. In the smaller towns these stores generally take the name of the place, as "Loa Coöperative Mercantile Institution," "Monticello Coöperative Company," "Spanish Fork Coöperative Association," "St. George Coöperative Store," "Nephi Coöp.," and so on down the list.

To appreciate fully how coöperation in Utah is practically born and bred into its "chosen people," it will be well to take a peep into the simplest phases of Mormon activity. The "teacher" is one of the lowest in the scale of Mormon officers. To the teacher in the city is assigned one-half of a block, and with the teacher's work begins the first object lesson in coöperation. It is the duty of the teacher to visit, meet, counsel with and assist every member of the church in his district. To the teacher each member confides his sorrows, joys, hopes and ambitions. To illustrate briefly with suppositious personages, we will take a block in Salt Lake City assigned to Orson Dunford. Dunford is a young man of good character, strongly imbued with the doctrines of the church, who has been selected by his bishop for this work because of his natural leadership. Among his first visits is his call upon Sister Anna Larsen, a domestic in a prominent Gentile family. Sister Larsen has heard from her mother, in Sweden, who wishes to join her daughter in America. The expense of the trip will be $60, and of this the young servant can furnish $25 from a year's frugal savings. The teacher reports the case to his bishop, and it is decided to send the money through the Copenhagen mission for the mother's expenses in coming to Utah. In due time the old lady arrives, secures some placé in kitchen or factory, and eventually the loan is repaid the bishop from the combined savings of mother and daughter. Teacher Dunford learns on his rounds from Brother Nichols that the irrigation ditch running between the Nichols and Katzmeyer gardens is the

cause of acrimonious dispute. After hearing Brother Nichols' version of the trouble, the teacher calls on Brother Katzmeyer. The line of brotherly duty is then defined by the teacher and each neighbor admonished as to his obligations. If this is not sufficient to heal the wound, the matter is referred to the Teachers' Quorum, presided over by the bishop. The Quorum calls the disputants before it, listens to the case and renders its opinion. In turn, if this is insufficient, the matter is carried still higher. In certain grave and far-reaching differences the Quorum of the Twelve Apostles listen solemnly to the case and pass on its merits. Generally, however, the confidence placed in the teacher and the Teachers' Quorum makes their decision acceptable to both parties and stops the trouble in its incipiency. Once a month the teachers of each ward assemble to compare notes and listen to reports from each other upon visits made in the various districts. Ordinarily a ward consists of nine blocks, so that there are eighteen teachers in a meeting. As each block is called by the bishop the teacher arises and makes a report—of which the following, taken verbatim, except as to names, is typical:

"Brother Brown and I visited Block Number Seven, spending two evenings in making the round. We found Sister Hagreen first-rate. She has had a bad cold, but is gradually improving. Brother and Sister Johnson we found in good health. Brother Sorenson's boy has a broken leg and he has been laid off work for two weeks. Brother Sorenson had a letter from his son Henry, who is on a mission in Australia, asking for $10 to assist in building a meeting house. I think we should furnish the money. Sister Knowles is getting very feeble. She is nearly ninety years old, and needs a sack of potatoes and flour. A lady living in the middle of the block—recently moved in—has a baby, a little boy. He should be named. Everything on our block is in good shape and the Saints in fine spirit, though inclined to shirk meetings."

A very important part of the teacher's duties is to ascertain whether each member in his district obeys the law of tithing. The faithfulness and promptness with which tithing is paid determines largely one's standing in the church. Accordingly, the teacher expounds the law of the church which calls upon every member to give one-tenth of his "increase" yearly for the benefit of the faith. The teacher, coming into close contact with the individual and the family, is in position to report to the bishop any shortcomings in tithing contribution or in obedience to "counsel." The teacher looks carefully into the conduct of the young members of his block, whom he urges to marry young and within their own faith. If illness, suffering or distress is discovered, it is immediately reported to the bishop, who sends the Relief Society (an organization of ladies in every Mormon ward) to attend to the case. There are no beggars among the Mormons—indeed, the spirit of mutual helpfulness is so general that few ever reach a condition where they ever want for the necessities of life. More than this, there is a regard for the aged and those incapacitated for work which is sadly lacking in Gentile communities. A holiday is set apart twice in each year for the aged, on which occasion the young turn out to assist in entertaining and comforting all those who have passed the sixtieth milestone of life. The teacher looks closely into all the affairs of his flock, being at once a confessor, counselor and family friend. He is the original source of information for the church, as well as the medium of communication to the brethren. The ease and rapidity with which "word" from the higher authorities can be passed to the whole Mormon people would surprise the uninitiated.

Another example of the coöperative system of the Mormons, and one of the best, is found in their colonization methods. The problem of providing homes and employment for the new converts, and of relieving the overcrowded condition of other settlements, has been constantly before the Mormon authorities. The leaders are always on the lookout for promising new fields for colonization. Lands capable of irrigation are always in demand. Canada, Mexico, Colorado, Wyoming, Arizona, Idaho and New Mexico have all been the scene of Mormon colonization at one time or another. Seldom does a Mormon "ranchman" emigrate alone to a new region. The recent settlement of the Big Horn Valley in northern Wyoming is typical of Mormon methods of colonization. The locality having been visited, examined and pronounced satisfactory by the Mormon leaders, word was passed through the Mormon settlements

of Utah that those seeking new homes should at once report to the authorities. One of the most practical farmers and able organizers was "called" by the presidency to lead the new colony. Selling his attractive home and quitting the neighborhood of a lifetime at call of his church, this brother responded promptly to the mission. At an appointed time and place the new colonists gathered with teams, wagons and supplies. With one of the Twelve Apostles as a guide, and their permanent leader—the man who had been called for the mission—they trekked three hundred miles northward to the Big Horn Valley. There they have since taken out a coöperative ditch (or canal, as it would be known in the East) which was constructed through the united efforts of the entire community. A coöperative store and a coöperative live-stock company followed in rapid succession. The settlers are laying the foundation for the same kind of flourishing community as was years ago established in the San Luis Valley, Colorado, the Snake River Valley, Idaho, and scores of other places. The Mormon farmer is conspicuous for his industry, frugality and integrity. He borrows sparingly and pays faithfully. The paying of debts is a tenet of the Mormon religion. He is by nature conservative and slow, seldom taking any important action without consulting bishop or teacher.

The habit of coöperation and of taking counsel enters into social, educational and political life quite as much as into business affairs. From the days of the Mormon pioneers the association of members into home stock companies for dramatic, operatic, concert and choir entertainment has been of much the same character as the coöperative business organizations.

Brigham Young was himself one of the most ardent patrons of amusements. In nearly every Mormon settlement there is some sort of dramatic company. Maude Adams, the well-known actress, had her first schooling in the old Salt Lake Stock Company, of which her mother, a Mormon, was a member. The present Governor of Utah was at one time leading man of the Home Dramatic Company of Salt Lake City. Thus the paternalism of the church has attended amusements of all kinds. Presumably the Salt Lake Theatre is the only theatre in the world where a private box is reserved every night of the year for the head of the church and his family; and rarely does it go unoccupied. This box is reserved gratis (as provided in every contract made by the theatre with visiting attractions) for the president of the Mormon Church—a relation of church and stage that would seem strange indeed in any place but Utah. Another box is reserved in the same way for the president's two counselors.

In educational affairs the same general systems of coöperation and paternalism are to be noticed. Church schools known as "Brigham Young Academies" and "Latter Day Saints' Colleges" have been established by the Mormons in various cities. These are supported from church funds supplemented by tuition from students. A number of handsome buildings are now being erected on the tithing-house square, opposite the temple in Salt Lake City, which promise to be the centre of Mormon educational work. Indeed, the educational movement has received a remarkable impetus in the last few years. Unfriendly commentators have maintained this to be an indication that the church wishes to educate its youth so that it can supply every field from its own ranks to the exclusion of the Gentile or non-Mormon element. This is placing a strained and unjust interpretation upon a very praiseworthy movement. It is true that the spirit of coöperation leads the Mormons to patronize their own representatives in the professions in preference to outsiders. So jealous is the church of the undivided interest of its members that they are forbidden to join secret societies, labor unions or fraternal insurance companies. At the late October General Conference, Apostle Abram O. Woodruff advised the formation of a labor organization within the church, that the work of the Mormons might be reserved for Mormon laborers.

In religious work the coöperative system of the Mormons is so well known as to need little more than passing reference. At the call of the presidency every member of the church is ready to go forth "without purse or scrip" to preach the Mormon doctrines. There are no salaried preachers in the Mormon Church. As a rule, the missionaries travel in pairs. The latest country to be invaded is Japan, where one of the Mormon Twelve Apostles, Heber J. Grant, with a corps of

missionary assistants, is vigorously prosecuting the religious work of the church.

In politics the coöperative spirit is the source of continual bitterness. Both national parties continually nominate prominent church officials for no other reason than the expectation of winning votes through the influence of this coöperative spirit. People accustomed to work together in every other relation of life are not likely to abandon the habit when it comes to the domain of politics, and especially when they are encouraged in it by those who do not belong to their faith. A few years ago one of the most prominent Mormon apostles was disciplined and dropped from his high place in the Mormon Church because he entered into a contest for the United States Senatorship without the permission of his church. In an authorized interview at that time with the writer of this article, the three presidents of the church stated that it was not thought compatible with the requirements of religious duties that members of the Quorum of the Twelve Apostles should enter into a scramble for political office—at least, not without asking and securing the permission of the church to which they had dedicated their services. Inasmuch as one of the Twelve Apostles is at present waging an open and aggressive contest for Senatorial honors, it may be reasoned that "permission" has been granted, and the apostle will be elected United States Senator.

Almost every other attempt in the United States to establish coöperative industries, even where backed by large wealth, has practically been a failure. Paternalism always implies a partial surrender of individual liberty. As developed by the Mormon people, however, the coöperativ system has utilized the services of many who would have succumbed to intense competitive effort; has eliminated waste, and has at all times presented a solid front to the enemies of the church; and Joseph F. Smith, the present head of the Mormon Church, is conspicuous for the progressive, clear-headed and fair-minded way in which he is administering the duties placed upon him.

THE NEEDS OF AMERICAN PUBLIC EDUCATION

GREATER EXPENDITURE NECESSARY—HOW PUBLIC SCHOOL CONDITIONS SHOULD BE IMPROVED BY BETTER BUILDINGS, BETTER TEACHERS, GREATER CARE FOR HEALTH, NEW METHODS AND STUDIES AND IN MANY OTHER WAYS

BY

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An address delivered before the Rhode Island Institute of Instruction October 23, 1902

ON October 17th I advocated before Connecticut teachers the expenditure of more money for education in the United States on the ground that the shortcomings and failures in American education, and the disappointments concerning its results, have been many and grievous; and on the next day I advocated before New Hampshire teachers increase of educational expenditure on the ground that many successes have been won by American schools and colleges, and that these successes, though involving increased expenditure, have been approved and rejoiced in by the American public. The first argument was an incitement to greater exertions, because of ill success or of imperfect attainment of ends wisely sought; the second was an encouragement to greater expenditure because of the results achieved with the expenditure already made. Tonight I wish to describe some of the objects for which increased expenditure should be made in the schools supported by taxation, and to adduce some further considerations fitted to encourage American communities to larger expenditure.

The expenditure on school buildings has been generous during the last twenty years; but in two respects most of the buildings erected during this period have fallen far short of the proper standard. First, in cities and large towns all school buildings should be fire-proof, and particularly all halls and stairways should be fire-proof. Wooden staircases should be absolutely prohibited in schools intended for children under fifteen years of age. Secondly, the woodwork in the interior of school buildings should be reduced to the lowest terms, and should be carefully constructed with reference to the facility of keeping it clean, just as the woodwork in the interior of a modern hospital is constructed; and the materials of walls in school buildings should not be absorbent, but, on the contrary, should resist both moisture and gases, and should be capable of thorough cleansing. The last remark applies also to the heating apparatus for school buildings. All flues, ducts, and boxes for the reception and conveyance of cold or hot air should be so built and disposed that their interiors can be cleaned. Any one who has examined with a lens the extraordinary amount of animal and vegetable matter which accumulates on a sheet of "tangle-foot" fly paper placed in a cold-air box, at any season of the year when the ground is not covered with snow, will heartily concur in this prescription. The observance of these rules would, of course, demand additional initial expenditure on school buildings, but would diminish the cost of maintenance. Again, whether in town or country, a large open space, yard or garden should surround every school building, and should be kept with neatness and decorated with shrubs and flowers. The denser the population in which the school is situated the greater the need of this open space; and the larger the school the larger should be the space surrounding the building. Here again is a call for a large additional expenditure; but it is an expenditure which the welfare of city children urgently demands. Every school should have the means of turning at least half its pupils into the open air simultaneously, and the space about the school should be so arranged that hundreds of children can occupy it without marring its decorative vegetation. This means, of course, that the greater part of every schoolyard should have a surface of gravel or asphalt. Such grounds could be made useful in crowded quarters to many people besides the school children. If it be urged that it is impossible in American cities to depend on the permanent occupation of any particular district by a population which needs schools, and therefore that the construction of durable schoolhouses and the provision of grounds about them are inexpedient, I reply that if a schoolhouse and its yard, once situated in the midst of a dense population, become unnecessary, it must be because the district has been abandoned as a residence quarter in favor of factories, shops, or some other sort of productive business; and, therefore, if the city has provided in such a district a large schoolyard, it will be able to compensate itself for the loss on its building by the rise in the value of its land.

Next to this improvement in schoolhouses and schoolyards comes improvement in the sanitary control and management of schools. This control requires the services of skilful physicians; and such a physician should be officially connected with every large school. It should be his duty to watch for contagious diseases, to prevent the too-early return to school of children who have suffered from such diseases, to take thought for the eyes of the children, lest they be injured in reading or writing by bad postures or bad light, to advise concerning the rectification of remediable bodily defects in any of the children under his supervision, to give advice at the homes about the diet and sleep of the children whose nutrition is visibly defective, and, in short, to be the protector, counselor and friend of the children and their parents with regard to health, normal growth, and the preservation of all the senses in good condition. Such medical supervision of school children would be costly, but it would be the most rewarding school expenditure that a community could make, even from the industrial or commercial point of view, since nothing impairs the well-being and productiveness of a community so much as sickness and premature disability or death. As in an individual, so in a nation, health and strength are the foundations of productiveness and prosperity.

The next object for additional expenditure is better teachers. Of course, teachers should know well the subjects which they are to teach; but that is by no means sufficient.

Every teacher should also know the best methods of teaching his subjects. College professors heretofore have been apt to think that knowledge of the subject to be taught was the sufficient qualification of a teacher; but all colleges, as well as all schools, have suffered immeasurable losses as a result of this delusion. Of course, it is better for a teacher to know his subject without knowing the right method of teaching it than to acquire a formal method without knowing the subject; because a conscientious teacher, by experimenting on his pupils, may in years acquire a good method at their expense; but teachers who are acquainted at the start with both subject and method are what schools and colleges urgently need. To secure this double proficiency means a greater expenditure on the training of teachers Under the head of better teachers may best be mentioned certain specific desiderata such as a larger proportion of male teachers in urban school systems, a larger proportion of women teachers who have been educated at college, and a larger proportion of both men and women who have received a genuine normal school training. All these are expensive desiderata.

With better teachers, numerous other improvements would come in, as, for instance, a better teaching of literature and of history, and better biological and geographical instruction, these natural-history studies being pursued by the pupils in the open air as well as in the schoolrooms. I have elsewhere urged that all public open spaces, whether country parks, forests, beaches, city squares gardens or parkways, should be utilized for the instruction of the children of the public schools by teachers capable of interesting them in the phenomena of plant and animal life. But this means quite a new breed of common school teachers. The teaching of geography in the open air is a delightful form of instruction; but it requires a teacher fully possessed of the principles of physiography, and knowing how to illustrate these principles on a small scale in gutters, brooks, gullies, ravines, hillsides and hilltops. Some nature study of this desirable sort has been already introduced into American schools; but it is not persisted in through years enough of the school course. There is needed much more of this sort of study, beginning in the kindergarten and going through the high school. Vacation schools can give this sort of instruction to great advantage. It must be confessed that it is an expensive kind of instruction; but this is one of the places at which more money should be spent.

Given better teachers, the next additional expenditure should be due to a large reduction in the number of pupils placed before a single teacher. This number may now be said to vary from forty to sixty in the different school systems of the United States. The higher number is monstrous and the lower far too large. Twenty to twenty-five pupils to a teacher are quite enough, if there is to be secured an adequate degree of attention to the individual pupil and a proper classification of each group of pupils according to their quality and capacity. This is an improvement very urgently needed in the American schools of today. It would doubtless cost a good deal of money, but it would not necessarily double the item of salaries; for one competent teacher, with an intelligent though less experienced assistant, can take good care of forty pupils. When from forty to sixty pupils are allotted to a single teacher with no assistant, there is no opportunity for individual instruction; the whole group must move on together; and it is inevitable that the brighter pupils should be sacrificed to the duller, which is the most wasteful thing a school can do. The improvement of which I am now speaking would lift American education to quite another plane of efficiency, and would make the life of the teacher vastly more interesting, more rewarding and happier. The personal contact between teacher and pupil would be more frequent and intimate, and the teacher's function would change from driving a flock to leading on and stimulating individuals.

In order to keep good a large staff of teachers employed by a city or town, a system of retiring allowances for teachers is indispensable. It is the American practice to keep in office superannuated or partially disabled teachers who have served long and well, and to pay them their salaries until death or complete disability overtakes them. This practice is uneconomical and very injurious to the children who come under the charge of such partially disabled or senile teachers. It is considerate toward the few veterans, but very inconsiderate toward the hundreds of children whose education is

impaired. A proper pension system gives the managers of a school system the means of retiring such teachers, and of replacing them by fresh, well-selected appointees, without causing any hardships or wounding any feelings. A good pension system is not expensive; for when an old teacher retires on an allowance the retirement will ordinarily give rise to several shiftings of place, and the vacancy really filled is one near the foot of the scale of salaries. There is a pension to pay, but there comes upon the pay-roll a newcomer's salary which is much smaller than the salary of the teacher of long service. Pensions, or retiring allowances, would not therefore be the cause of a large new expenditure, but would instead bring about a great increase in the competency or efficiency of any urban school system.

The universal employment of highly trained superintendents in both urban and rural systems is the next improvement of which I would speak. This improvement has been partially introduced; but it ought to become universal, and the quality of the superintendence should be always rising, until the position of superintendent shall be recognized as the highest in a school system, whether in city or country. A single superintendent can, of course, serve several rural districts or towns; and to obtain the right kind of superintendent such coöperation is necessary. In general, the aid of the State is also necessary to provide rural communities with competent superintendents. Such superintendents should be entirely independent of political influences, and should enjoy a large measure of authority and freedom in their functions. They ought, as a rule, to be men or women of college education, who have had some experience themselves as teachers in schools or academies. The kind of superintendent that I have in mind is one who comes into immediate contact with both teachers and pupils. The wide-field superintendence, such as a State superintendent may exercise, is of course desirable; but such a remote official may not have the immediate good influence on the teaching, discipline and business management of the schools which a rural superintendent and the inspector or supervisor in large city systems may exercise. It is the man or woman who is constantly going about among the schools in his or her charge whose educational quality needs to be raised. The head of a State system, or of a large city system, is an administrator. The rural superintendent or city supervisor is primarily an inspector, teacher and guide.

All business or executive functions ought to be withdrawn from the school committees or boards and handed over in part to the superintendent, and in part to a business agent, who, like the superintendent, is a permanent salaried officer. Since the present sub-committees of school committees or boards serve without pay, the salaries of these business agents would, of course, be an additional charge; but a competent and experienced agent, by conducting school business judiciously, will always save more than his salary and will, moreover, greatly increase the wholesomeness and efficiency of the schools.

An expensive improvement in the public schools, but one urgently needed, is the enrichment of the school programme for the years between nine and fourteen, and the introduction of selection among studies as early as ten years of age. Unless this is done, and done soon, the public schools will cease to be resorted to by the children of well-to-do Americans. The private and endowed schools offer a choice of foreign languages, for instance, as early as ten years of age and even earlier; and everybody knows that this is the age at which to begin the study of foreign languages, whether ancient or modern. In large cities it seems to be already settled that the private and endowed schools get the children of all parents who can afford to pay their charges. One reason for this result is that the programmes of the public schools are distinctly inferior to the programmes of the good private and endowed schools; and they are inferior at precisely this point—they have too limited a range of studies in the years between nine and fourteen. It is, of course, not desirable that each individual child should pursue a great variety of studies; but it is essential that each individual child should have access to a variety of studies. The tendency in all American school systems has been to segregate the foreign languages, the mathematics beyond arithmetic, and the higher scientific and historical studies in the high school programmes—which means that only that small proportion of children who go on to the high school have any access to those studies. No arrangement could pos-

sibly be more undemocratic; although its inventors did not foresee the real working of their method in this respect. The achievement of this enrichment of the programmes would cause the retention of children in school for a larger number of years, and the carrying forward of more children into the upper schools; and these are effects greatly to be desired. I am bound to acknowledge, however, that these changes would be decidedly costly; they would require more accomplished and more skilful teachers for the years between nine and fifteen, and more apparatus for teaching; and if they were successful there would be more children to teach in the upper grades of the system.

An incidental effect of these changes would be the development of departmental instruction—that is, skilful teachers would teach one subject through several grades, instead of teaching all subjects for one grade. It was in 1766 that Harvard College—then no more than a good high school—abandoned the method of teaching all subjects to one class by one man. The American public school system bids fair to be nearly one hundred and fifty years behind Harvard College in adopting the departmental method—a method which develops in both teachers and pupils a growing interest in their work and increases greatly the personal influence of teachers, because the staying pupils work through several successive years under the same teacher. Another effect of this enrichment of the programmes would be the postponement for every individual pupil of the grave decision between studies which permit access to the higher institutions of learning, and studies which do not. The later this decision can be made the better for the individual, and the better for the schools; because a course of study which is preparatory to all possible future routes in education is sure to be a better course than the poorer of two courses, one of which leads on to the higher institutions and the other does not.

The election of studies in secondary schools involves increased expenditure for two reasons: first, because there are more subjects to be taught; and, secondly, because each subject will be carried further than it is under a uniform prescribed course. Moreover, the classes in each subject will be smaller than they are under a prescribed system, because the total number of pupils will be divided among a larger number of subjects. The election of studies in secondary schools is already introduced in many places, generally under the form of several groups of studies bearing different names; but sometimes, as in Boston, in a frankly elective method. The experience of the American colleges in regard to the elective system demonstrates that it is much more costly than the prescribed; but it is also so much more effective for all educational purposes, whether mental or moral, that it advances steadily in all the faculties of arts and sciences, and never takes a backward step. It may be safely assumed, therefore, that it will make steady progress in the secondary schools of the country, and with like results—greater cost, but greater profit.

In many scattered places in the United States perfect demonstration has already been given that manual training and instruction in the mechanical arts and trades are, in the first place, valuable as means of mental and moral training, and, in the second place, useful for the individual toward obtaining a livelihood, and for the nation toward developing its industries. Accordingly, manual training schools, mechanic arts high schools and trade schools ought to become habitual parts of the American school system; and normal schools and colleges ought to provide optional instruction in these subjects, since all public school teachers ought to understand them. Such schools are more expensive than schools which do not require mechanical apparatus and the service of good mechanics as instructors; but there can be no doubt that they will repay promptly their cost to the community which maintains them.

Vacation schools have also demonstrated their great usefulness in cities and large towns. The best ones offer manual training for both boys and girls, as well as book work, and are heartily welcomed by both parents and children. They combat effectively the mistaken policy of long vacations for children who cannot escape from the crowded city streets and tenements. Indeed, the experience recently gained in city vacation schools and in the summer courses of colleges and universities proves that the long summer vacation of nine to thirteen weeks is by no means necessary to the health of either school children or maturer students. The best method is to keep the pupil in vigor all the year by means of frequent recesses during

school hours, free half-days twice a week, and occasional respites of a week. Then the vacation school in summer should offer a distinct variety of work in subjects different from those pursued the rest of the year; for children and adults alike find great refreshment in mere change of work. For example, the competent college professor may indeed seek change of air and scene during the summer vacation, but it is for the purpose of doing under advantageous conditions a kind of intellectual work different from that which engrosses him in term-time, and not with the intention of keeping his mind vacant or inert. Furthermore, vacation schools in the poor quarters of closely built cities are downright refuges from the physical squalor and moral dangers of the streets. It is obvious that vacation schools on an adequate scale must cause a serious addition to school expenditure of a city or large town; for they require the services of an additional corps of teachers, and they need additional apparatus, materials and service. It is equally obvious that these schools are urgently needed by a large proportion of the population on grounds which are simultaneously physical, mental and moral. I say nothing here about the kindergarten, because, as I have twice pointed out of late, the kindergarten has already been somewhat extensively adopted as part of the public school system, and is winning more and more favor.

Another additional expenditure which public schools ought to incur as soon as possible is a development of instruction in drawing. Drawing is a mode of expression which ought to be as universal as writing. There is no art, trade or profession in which it is not useful, and the enjoyment of life may be greatly increased by the habitual use of the pencil in sketching interesting objects of all sorts, natural or artificial. Time for drawing can be obtained in school programmes by diminishing the time given to penmanship. Instruction in one art will help the other, and of the two drawing is far the most instructive, since it trains the powers of observation and helps to make the retained impressions both accurate and vivid. It is an incidental advantage of drawing that it reinforces the teaching of geometry, and particularly of solid geometry. The comparative neglect of geometry is one of the most curious phenomena in American education, when the importance of that subject in the mechanical and constructive arts in which Americans excel is duly considered.

Music is another subject which ought to be made much more of in all American schools, public, private and endowed, than it now is. The elementary schools do more for music than the secondary schools; so that the course of musical instruction is broken off too early and the skill gained before fourteen years of age is lost later through disuse. A moderate degree of musical knowledge and skill adds greatly to the enjoyment of life, no matter how the livelihood may be earned. To increase rational joy is one of the objects which public education should always keep in sight. I need not say that music has always been a true culture subject, an ally of literature, art and religion.

Lastly, the schools ought to be provided liberally with all appliances which can improve either teaching or administration, and with all service which can relieve the teachers of unnecessary bodily or mental strains. Such appliances are books, maps, charts, models, diagrams, lantern-slides and electric lanterns, telephones, collections of specimens, physical and chemical apparatus, casts, photographs, pictures, typewriters and pianos. To try to teach without these aids is like trying to stop a conflagration with buckets passed from hand to hand, or like starting for Chicago in a one-horse chaise instead of in the Empire State Express. The prevailing poverty of our schools in these respects is lamentable. At every stage of education, from the kindergarten through the university, an alert and progressive teacher can save his or her own time and energy by transferring the mechanical or routine parts of his or her work to an assistant who receives a much smaller compensation than the teacher. To save that valuable time and energy for the best work is the truest economy, yet this economy is seldom practiced. In both these respects American schools fall far below the standards of well-conducted commercial and industrial establishments.

I have thus enumerated various ways in which a greatly increased expenditure on American schools ought to be made. This audience of teachers may perhaps have observed that I have not said a word about raising salaries. That is because I do not consider that direction the best one for

additional school expenditure. The teacher needs many other things more than higher pay—good light and air to work in, medical inspection and care for the school, all available assistance in the schoolroom, all useful apparatus for teaching—particularly that which appeals to the eyes and fingers of the pupils—relief from mechanical and clerical work, a better tenure, a pension at disability, and expert instead of amateur supervision. And, on the other hand, the community needs to have the teacher a more intelligent, better-informed, robuster and gayer person, that children will "take to" and wish to please, and that parents will be glad to have visit them in their homes.

With these objects in view the expenditure in those parts of our country where it is now smallest ought to be raised as rapidly as possible to the level of those regions where it is now greatest; and in those regions where the expenditure is now most liberal it ought to be doubled as soon as possible.

I know that some people will say that it is impossible to increase public expenditure in the total, and therefore impossible to increase it for schools. I deny both allegations. Public expenditure has been greatly increased within the last thirty years, and so has school expenditure. What the country has done it can do again; and, furthermore, it can better its past record. Moreover, school expenditure ought to be increased, even though the total expenditures of the community should not rise; because it yields a greater return than any other expenditure. It is, indeed, far the most profitable of all the forms of public expenditure; and this is true whether one looks first to material prosperity, or to mental and moral well-being; whether one regards chiefly average results, or the results obtained through highly gifted individuals.

But some skeptic may ask, How do we know that even the expenditure the country now makes for education is worth making? And again, how do we know what the results of popular education are? What test is there for the efficiency of popular education? Let me try, in conclusion, to answer these grave questions.

In the first place, as I look back on the progress of American education since the Civil War, I think I see that education is the one agency for promoting intelligence and righteousness which has ever unquestionably gained power in the United States during the last half-century, the one agency which has not only retained its hold on the democratic masses, but has distinctly gained more and more public confidence, and received from the democracy greater and greater moral and material support. The democracy has believed more and more in the efficiency of schools and colleges; and schools and colleges have more and more taught and acted out democracy. This is only saying, on the one hand, that the popular masses perceive that it is in large part the schools and colleges which implant in successive generations democratic ideals and make them fit to be free; and, on the other, that the schools and colleges believe in the democratic ideals, and fervently desire to promote brotherhood, unity and the practical acceptance of the Pauline doctrine, "every one members one of another." Can we say of any other of the organized inspiriting and moralizing forces in American society that it has gained strength and increased its influence during the past fifty years? The efficiency of legislatures and the respect in which they are held have unquestionably declined since the Civil War. American legislative assemblies, whether municipal, State or national, have repeatedly shown themselves unable to solve, or even begin to solve, the new problems which have arisen in rapid succession out of the incredible changes in industry, commerce and transportation. In other words, legislatures have not been able to keep up with American progress in other fields. Some of them have ceased in large measure to be deliberative assemblies, and habitually transact important parts of their business in secret committee meetings. Others have proved to be in the hands of one man, himself not a public official; so that legislation is adopted or rejected at that one man's will—sometimes a purchasable will. Congress has repeatedly disappointed the people in respect both to its intelligence and to its magnanimity; and with a rather piteous recognition of its own incapacity it has repeatedly taken refuge in the discretion of the Executive.

Most persons will also agree that the courts of our country are as a whole less efficient and less respected today than they were a generation or two generations ago. Their decline is painfully apparent in criminal

matters—and is plainly visible in civil matters also. The efficacy of the death penalty has been well-nigh destroyed by the delays ordered or permitted by courts. The courts often seem embarrassed by conflicting precedents or contradictory decisions, and paralyzed by multiplying technicalities and ingenuities of counsel. Moreover, they not infrequently give uncertain sounds. Hence reverence for law is not maintained at its old level; and lawless violence against suspected criminals claims justification in the delays and uncertainties of legal processes.

The church and its ministers cannot be said to have risen in public estimation since the Civil War. Its control over education has distinctly diminished. In some of its branches it seems to cling to archaic metaphysics and morbid poetic imaginings; in others it apparently inclines to take refuge in decorums, pomps, costumes and observances. On the whole, it has not been able to keep up with the progress of either science or democracy—those Atalantas of the nineteenth century that never stop for golden apples dropped in their path—and it has shown little readiness to rely on the intense reality of the universal sentiments to which Jesus appealed, or to go back to the simple preaching of the gospel of brotherhood and unity—of love to God and love to man. So the church as a whole has today no influence whatever on many millions of our fellow countrymen—called Jews or Christians, Protestants or Catholics though they be. We still believe that the voluntary church is the best of churches; because a religion which is accepted under compulsion is really no religion at all for the individual soul, though it may be a social embellishment or a prop for the State. Yet, believing thus, we have to admit that the voluntary church in the United States has no hold on a large and increasing part of the population.

By no positive fault of their own, but by a sort of negative incapacity, legislature, court and church seem to be passing through some transition which temporarily impairs their power; but the schools and colleges in the United States, while changing and developing rapidly, have suffered no impairment of vigor or influence. On the contrary, education as an uplifting agency was never so effective with the democracy as it is today. To redeem and vivify legislatures, courts and churches, what agency is so promising as education? Next to steady productive labor education is the prime factor in social and industrial progress. This primacy of education among the various civilizing factors affords the strongest possible inducement to spend every dollar on popular education which can be spent advantageously. It also gives an answer, drawn from experience, to the question—Is the present expenditure worth making? A reasonable foresight supplies another answer. We should ask ourselves what better remedy than wise popular education, what other thorough remedy, can be imagined for the new evils which threaten society because of the new facilities for making huge combinations of producers, or middlemen, of farmers, or miners, or manufacturers, of rich or poor, of laborers or capitalists. Masses of men are much more excitable than average individuals, and will do in gregarious passion things which the individuals who compose the masses would not do. A crowd is dangerously liable to sudden rage or—what is worse—sudden terror, and either emotion may overpower the sense of responsibility and annihilate for the moment both prudence and mercy. There never was a time when common sentiments and desires could be so quickly massed, never a time when the force of multitudes could be so effectively concentrated at a selected point for a common purpose. Against this formidable danger there is only one trustworthy defense. The masses of the people must be taught to use their reason, to seek the truth, and to love justice and mercy. There is no safety for democratic society in truth held, or justice loved, by the few; the millions must mean to do justly, love mercy, and walk humbly with their God. The millions must be taught to discuss, not fight; to trust publicity, not secrecy; and to take timely public precautions against every kind of selfish oppression. To give this instruction steadily and universally society possesses no organized agency which compares in present efficiency and future promise with the schools. Therefore, the present expenditure on schools is fully justified and increased expenditure urgently demanded. I can almost hear the objection—this expectation of popular schools is extravagant—they are only for teaching reading, writing and ciphering. Not so, I reply. The common schools should impart the elements of physical, mental and moral training, and in

morals the elements are by far the most valuable part.

Secondly, let me deal briefly with our skeptic's demand for a test of the results of popular education. I think there must be some sure-working practical tests of the efficiency of popular education. Can they be stated? Concerning an educated individual, we may fairly ask, can he see straight? can he recognize the fact? Next, can he draw a just inference from established facts? Thirdly, has he self-control? or do his passions run away with him? or untoward events daunt him? These are fair tests of his mental and moral capacity. One other test we may fairly apply to an educated individual—does he continue to grow in power and in wisdom throughout his life? His body ceases to grow at twenty-five or thirty years of age—does his soul continue to grow? It is obvious that these tests are difficult of application to a nation; but we are not wholly without means of applying them to our own people as a mass. The people live by agriculture, mining and manufacturing; and these great concerns cannot be successfully managed unless multitudes of men recognize essential facts, and draw the right inferences from the truths they embody.

The success with which the American people get their livelihood shows that there is much soundness in their mental training. Millions of them must be able to observe accurately and to infer justly. One of the most difficult tasks for a man who thinks imperfectly is to get over a delusion. Whenever the American people through the reasoning power of millions get over a delusion, they shed light on the efficiency of their own education. We have had a recent piece of evidence of this sort in the recovery of our people from the widespread silver delusion. Do their passions run away with the people? They did not after the Civil War, the forbearance of the Confederates being as remarkable as that of the Unionists. They did not at the close of the fighting with the poor Spaniards in Cuba. Never were terms of surrender more generous, or, I may add, more ingenious. The same self-control was manifested in the intelligent withdrawal of our soldiers from China. Do untoward events daunt the people? No. As a rule, our population bears calamities and losses with constancy and calmness. The country lately lost its singularly beloved Chief Magistrate, and lost him in an intensely mortifying way; but our Government never staggered even for a moment, and the whole work and life of the people went on without a halt, or even a quiver, excepting the momentary thrill of horror and humiliation. In the recent coal strike, which doubled the price of a necessary of life and caused widespread injuries and anxieties, the attitude of the much-enduring public was calm and discreet. The public took sides with neither party, looked on quietly at the irrational strife, accepted no bad advice, tried no unconstitutional remedies—just bore the losses, and waited five months for the combatants to accept that method of inquiry, discussion and mutual consideration which ought to have been adopted when the conflict first arose. The strike has furnished a good illustration of popular self-control under very irritating conditions. Such are some of the indications that American education has not wholly failed of its high object.

Can we apply to the education of the nation the ultimate test which we finally apply to the education of an individual? As the national life grows broad and rich does the national soul or spirit grow with it? Does mental and spiritual progress keep pace with material? God only knows; but mortals may discern some facts which make toward the conclusion we should all like to establish. Thus, in regard to the mental powers of the population, whenever new machines, be they reapers, looms, cranes, crucibles, guns or electric motors, have required more intelligent men behind them, the nation has invariably supplied on demand the needed men. This evidence is furnished incessantly on an immense scale, and it signifies that the people rise to their higher work. When a quiet villager, who has been just caring for his farm and his sawmill, is made school agent or chairman of the Board of Health, and is forced to think of all the children in the town, or of all the sick in it, if he does his work well, grasps ideas novel to him, and by energetic and judicious action spreads them through the town, we say that he has grown to his enlarging work. On a higher plane—that is just what we do say of Benjamin Franklin and Abraham Lincoln. In like manner the American people has grown to its expanding and novel industries, arts and commerce,

and has clearly done its daily work better than the competing nations. Hence, the total training of its youth, an important part of which has been given by the schools and colleges, must have been measurably successful.

The extraordinary sale of dictionaries and encyclopedias in the United States demonstrates the existence in innumerable households of the habit of looking up the meaning of words and the facts about unfamiliar topics encountered in conversation or in reading. This habit implies a lifelong desire to learn. The reading habits of the people prolong mental activity and growth, widen interests and quicken sympathies; for the great mass of the people's reading matter is pure and instructive, in spite of the mortifying fact that parts of most daily newspapers are given over to Cloacina and the Furies.

But all this refers to the national mind applied to things material, or to the ordinary plane of commonplace life. How about things spiritual, the great moral movements, and the refinements and adornments of life? Is there any better test of unselfish and gentle feeling in a multitudinous people than their habitual treatment of women and children? Now, on the whole, Americans of all classes treat their women in large things and small better than any other people treat theirs. American men are laughed at by foreigners for making their wives and daughters extravagant and self-indulgent. On farms the women do not work in the fields as all foreign peasant women do. For factories we have in many States protective legislation in regard to the employment of women and children. There is a very significant difference between the expectation on the part of the American people of personal purity and domestic honor in their public men, and the expectation in those regards on the part of any European people concerning their kings, princes and high officials. The politician who disappoints the American people in that respect is lost, be he ever so serviceable a person. As to the treatment of children, it is certain that the discipline in American families and schools is gentler and more considerate than in other countries. Moreover, there has been a great advance in this respect within thirty years, an advance which has made the whole people happier and better. This is a widespread gain, made in millions of homes and schools; and it not only tells on the present moral condition of our people, but is of the highest promise for the future. Somehow slavery is gone and intemperance has been checked and made disgraceful. The results testify to the moral forces which produce them.

If one would estimate the progress of a people in the fine arts and in science, one must go to the works of the few men who best illustrate the national art and science. In the whole history of sculpture can any one point to a more informing, inspiring and touching military monument than the Shaw monument on Boston Common? There are bigger and costlier; but none more expressive, juster or more uplifting. Look through the whole list of astronomical observatories since such establishments existed and you will not find one which, in proportion to its resources, has produced so much routine work and made so many new discoveries as the Harvard College observatory under its present director. In the prompt and general application of scientific discovery to the service of humanity Americans certainly excel other nations. It is enough to mention anæsthesia, the telegraph, the telephone, and the innumerable inventions of labor-saving machinery. The use made of riches is another test of the moral condition and standards of a people. Now the stream of gifts from private persons to schools, colleges, universities, libraries, art galleries, museums and laboratories in the United States flows in a volume which has never been approached in the history of the world. It is said that there are only six towns in all Massachusetts the inhabitants of which have no access to free books. It is not only the few very rich men who provide educational endowments. Every year thousands of Americans take part in this most intelligent beneficence, wiser than any endowment of hospitals, asylums or infirmaries, because a work of construction instead of palliation. Truly there are some encouraging evidences that the soul of the people keeps growing.

So, in good heart and hope, learning from failures what not to do, and from successes what next to attempt, we may all press on together toward our national goal—the perfecting of an intelligent individual citizenship in a Christian democracy

A NEGLECTED EPIC

HOW THE REAL HERO OF THE AMERICAN WESTWARD MOVEMENT HAS BEEN FORGOTTEN IN LITERATURE

BY

FRANK NORRIS

AS I have tried to point out once before in these pages, the Frontier has disappeared. The westward-moving course of empire has at last crossed the Pacific Ocean. Civilization has circled the globe and has come back to its starting point, the vague and mysterious East.

The thing has not been accomplished peacefully. From the very first it has been an affair of wars—of invasions. Invasions of the East by the West, and of raids north and south—raids accomplished by flying columns that dashed out from both sides of the main army. Sometimes even the invaders have fought among themselves, as for instance the Trojan War, or the civil wars of Italy, England and America; sometimes they have turned back on their tracks and, upon one pretext or another, reconquered the races behind them, as for instance Alexander's wars to the eastward, the Crusades, and Napoleon's Egyptian campaigns.

Retarded by all these obstacles, the march has been painfully slow. To move from Egypt to Greece took centuries of time. More centuries were consumed in the campaign that brought empire from Greece to Rome, and still more centuries passed before it crossed the Alps and invaded northern and western Europe.

But observe. Once across the Mississippi, the West—our Far West—was conquered in about forty years. In all the vast campaign from east to west here is the most signal victory, the swiftest, the completest, the most brilliant achievement—the wilderness subdued at a single stroke.

Now all these various fightings to the westward, these mysterious race-movements, migrations, wars and wanderings have produced their literature, distinctive, peculiar, excellent. And this literature we call epic. The Trojan War gave us the "Iliad," the "Odyssey" and the "Æneid"; the campaign of the Greeks in Asia Minor produced the "Anabasis"; a whole cycle of literature grew from the conquest of Europe after the fall of Rome—"The Song of Roland," "The Nibelungenlied," "The Romance of the Rose," "Beowulf," "Magnusson," "The Scotch Border Ballads," "The Poem of the Cid," "The Hemskringla," "Orlando Furioso," "Jerusalem Delivered," and the like.

On this side of the Atlantic, in his clumsy, artificial way, but yet recognized as a producer of literature, Cooper has tried to chronicle the conquest of the eastern part of our country. Absurd he may be in his ideas of life and character, the art in him veneered over with charlatanism; yet the man was solemn enough and took his work seriously, and his work is literature.

Also a cycle of romance has grown up around the Civil War. The theme has had its poets to whom the public have been glad to listen. The subject is vast, noble; is in a word epic, just as the Trojan War and the Retreat of the Ten Thousand were epic.

But when at last one comes to look for the literature that sprang from and has grown up around the last great epic event in the history of civilization, the event which in spite of stupendous difficulties was consummated more swiftly, more completely, more satisfactorily than any like event since the westward migration began—I mean the conquering of the West, the subduing of the wilderness beyond the Mississippi—What has this produced in the way of literature? The dime novel! The dime novel and nothing else. The dime novel and nothing better.

The Trojan War left to posterity the character of Hector; the wars with the Saracens gave us Roland; the folklore of Iceland produced Grettir; the Scotch border poetry brought forth the Douglas; the Spanish epic the Cid. But the American epic, just as heroic, just as elemental, just as important

and as picturesque, will fade into history leaving behind no finer type, no nobler hero than Buffalo Bill.

The young Greeks sat on marble terraces overlooking the Ægean Sea and listened to the thunderous roll of Homer's hexameter. In the feudal castles the minstrel sang to the young boys, of Roland. The farm folk of Iceland to this very day treasure up and read to their little ones hand-written copies of the Gretla Saga chronicling the deeds and death of Grettir the Strong. But the youth of the United States learn of their epic by paying a dollar to see the "Wild West Show."

The plain truth of the matter is that we have neglected our epic—the black shame of it be on us—and no contemporaneous poet or chronicler thought it worth his while to sing the song or tell the tale of the West, because literature in the day when the West was being won was a cult indulged in by certain well-bred gentlemen in New England who looked eastward to the Old World, to the legends of England and Norway and Germany and Italy for their inspiration, and left the great, strong, honest, fearless, resolute deeds of their own countrymen to be defamed and defaced by the nameless hacks of the "yellow back" libraries.

One man,—who wrote "How Santa Claus Came to Simpson's Bar,"—one poet, one chronicler did, in fact, arise for the moment, who understood that wild, brave life and who for a time gave promise of bearing record of things seen.

One of the requirements of an epic—a true epic—is that its action must devolve upon some great national event. There was no lack of such in those fierce years after '49. Just that long and terrible journey from the Mississippi to the ocean is an epic in itself. Yet no serious attempt has ever been made by an American author to render into prose or verse this event in our history as "national" in scope, in origin and in results as the Revolution itself. The prairie schooner is as large a figure in the legends as the black ship that bore Ulysses homeward from Troy. The sea meant as much to the Argonauts of the fifties as it did to the ten thousand.

And the Alamo! There is a trumpet-call in the word; and only the look of it on the printed page is a flash of fire. But the very histories slight the deed, and to many an American, born under the same flag that the Mexican rifles shot to ribbons on that splendid day, the word is meaningless. Yet Thermopylae was less glorious, and in comparison with that siege the investment of Troy was mere wanton riot. At the very least the Texans in that battered adobe church fought for the honor of their flag and the greater glory of their country, not for loot or the possession of the person of an adulteress. Young men are taught to consider the Iliad, with its butcheries, its glorification of inordinate selfishness and vanity, as a classic. Achilles, murderer, egoist, ruffian and liar, is a hero. But the name of Bowie, the name of the man who gave his life to his flag at the Alamo, is perpetuated only in the designation of a knife. Crockett is the hero only of a "funny story" about a sagacious coon; while Travis, the boy commander who did what Gordon with an empire back of him failed to do, is quietly and definitely ignored.

Because we have done nothing to get at the truth about the West, because our best writers have turned to the old country folk-lore and legends for their inspiration, because "melancholy harlequins" strut in fringed leggings upon the street corners, one hand held out for pennies, we have come to believe that our West, our epic, was an affair of Indians, road agents and desperadoes, and have taken no account of the brave men who stood for law and justice and liberty, and for those great ideas died by the hundreds, unknown and unsung; died that the West might be subdued, that the last stage of the march should be accomplished, that the Anglo-Saxon should fulfil his destiny and complete the cycle of the world.

The great figure of our neglected epic, the Hector of our ignored Iliad, is not, as the dime novels would have us believe, a lawbreaker, but a lawmaker; a fighter, it is true, as is always the case with epic figures, but a fighter for peace, a calm, grave, strong man who hated the lawbreaker as the hound hates the wolf.

He did not lounge in barrooms; he did not cheat at cards; he did not drink himself to maudlin fury; he did not "shoot at the drop of the hat." But he loved his horse, he loved his friend, he was kind to little children; he was always ready to side with the weak against the strong, with the poor against the rich. For hypocrisy and pretence, for shams and subterfuges, he had no mercy, no toler-

ance. He was too brave to lie and too strong to steal. The odds in that lawless day were ever against him; his enemies were many and his friends were few; but his face was always set bravely against evil, and fear was not in him even at the end. For such a man as this could die no quiet death in a land where law went no further than the statute books and life lay in the crook of my neighbor's forefinger.

He died in defense of an ideal, an epic hero, a legendary figure, formidable, sad. He died facing down injustice, dishonesty and crime; died "in his boots"; and the same world that has glorified Achilles and forgotten Travis finds none so poor to do him reverence. No literature has sprung up around him—this great character native to America. He is of all the world-types the one distinctive to us—peculiar, particular and unique. He is dead and even his work is misinterpreted and misunderstood. His very memory will soon be gone, and the American epic, which on the shelves of posterity should have stood shoulder to shoulder with the "Hemskringla" and the "Tales of the Nibelungen" and the "Song of Roland," will never be written.

A CONSERVATIVE WORD OF WARNING

THE DANGER THAT OUR PRESENT RATE OF EXPANDING CREDITS MAY HAVE IN STORE FOR US—A THOROUGH REVIEW OF OUR FINANCIAL SITUATION—IS IT SOUND?

BY

FRANK A. VANDERLIP

VICE-PRESIDENT OF THE NATIONAL CITY BANK OF NEW YORK CITY

An address delivered before the Chamber of Commerce of Wilmington, North Carolina

WE are all aware that we are in a unique period of commercial, financial and industrial development. It is undoubtedly the most important, the most remarkable and the most interesting period of industrial and financial evolution in the history of the nation. We have witnessed in the last half-dozen years a commercial expansion and a financial movement alike unparalleled in the achievements of our own country or in the growth of other lands—of which I shall emphasize a few noteworthy facts.

In the domestic field we have had both a series of extraordinary crop years and a period of extraordinary industrial activity. On the agricultural side we have seen the annual value of farm products increase far over $1,000,000,000 in the last half-dozen years, and we have seen the value of the farms themselves advance more than $4,000,000,000 in the same time. In the industrial field we have had a period of the fullest employment of labor (except where labor has chosen to refrain from work) and of the highest general level of wages which has ever been known, either with us or with any other people. The definite evidence of this prosperity we have seen in a doubling of the individual deposits in national banks, the total going up from roundly $1,600,000 000 in 1896 to $3,200,000,000 this year. In the same time the deposits of savings banks have increased $700,000,000, the deposits of State banks $1,000,000,000—considerably more than doubling the total of six years ago—and the deposits in trust companies also more than doubling, the increase there being $600,000,000. In these half-dozen years the credits represented by individual deposits in banks of all classes have increased roundly $4,000,000,000, an increase nearly equal to the total deposits of all kinds half a dozen years ago.

Bank clearings—an excellent measure of general trade—increased in these half-dozen years 150 per cent., and it is estimated that the total wealth of the country has had more than $20,000,000,000 added to it in that period.

We have increased our coal production 100,000,000 tons, and passed easily to the

position of the greatest of coal-producing nations. We have almost trebled our production of steel, leaving our competitors far behind in any comparison of volume of business. We have added $400,000,000 to the annual product of our mining industries.

Whichever way we turn we find that the figures measuring the volume of business, the extent of industry, the growth of financial importance, have in these last half-dozen years made an apparent gain equal to the entire total six years ago. It is hardly too much to say that in six years we have doubled the figures measuring the apparent extent of our annual domestic business.

Now, for a moment, to turn from the domestic side of the account to the foreign situation. Here we have recorded gains which have given deep concern to the whole commercial world. In 1896 we passed the $1,000,000,000 mark with our exports, and in five years more the total stood just under $1,500,000,000. At the same time our imports were declining, so that we were not only making wonderful inroads upon foreign markets, but we were more than holding our own in our own markets in competition with foreign manufacturers. Our foreign trade balances began to show incredible totals in our favor, running up well over $600,000,000 a year, and causing the gravest apprehension in the minds of our commercial rivals in regard to the industrial readjustment which the world must look forward to if such totals were to be maintained. In a single year we imported $105,000,000 of gold. The world suddenly discovered that we were not alone its granary, but we were likely to become its workshop. We pushed into the foreign markets with the handiwork of our mechanics and the products of our machines, month by month increasing our sales, until from a total of less than $200,000,000 of exports of manufactures we had soon far exceeded $400,000,000, making increases so rapid that Europe was brought face to face with the problem of reorganization of her industries to meet this new-born competition, and a readjustment of her finances to pay for her increased purchases, which she seemed unable to offset by increased sales.

I had the privilege a year ago of meeting many of the foremost statesmen and financiers of Europe, and of discussing with them the commercial questions which had been raised by our rapid industrial development and by our wholesale invasion of their markets. I found everywhere the problem receiving most serious attention. Everywhere it was regarded as the most vital of economic questions, and nowhere did I find anything but wonder over the development which we were showing and apprehension in regard to the effect of its continuance. Where it was to lead in its effect upon European industries and European finances, if it were to continue, was the unsolvable problem of finance ministers, bankers and industrial captains. I had the privilege of a conversation at that time with Germany's most distinguished financier and industrial upbuilder, the late Georg von Siemens—the creator of the Deutsche Bank, the adviser of the government, the originator of vast industrial enterprises. I asked him what was the future of the Old World in respect to this new industrial development and this sudden show of financial strength in America. I asked him what was to be the result, if we were to go on selling to Europe $600,000,000 of goods a year more than we bought, increasing our exports, decreasing our imports, building up a theoretical trade balance of such totals as were new in international finance.

Herr von Siemens was a wise and an experienced man. He had passed through crises and through periods of inflation, and he viewed the outlook with calmness.

> "I am not concerned about what will happen to Europe if you are to go on in this triumphal way," he told me, "because you will not go on. There will be something which will stop you. Something always does happen in such a situation as this, and something will happen now. I do not know what it is; my vision is not broad enough or clear enough to foresee it, but you will make mistakes and a halt will be called."

It is my purpose to examine somewhat critically the present industrial and financial conditions, with a view to seeing if this shrewd German observer was right, with a view to determining if something has happened to call a halt in our progress toward a command of the world's markets, and then to offer, if I can, some suggestions as to why it is that we have failed to keep up the pace and as to what can be done to remove the obstacles that are retarding our progress.

I am just back from another European trip, and have again met many of the most distinguished of European statesmen and financiers.

The change that the year has made in their point of view is extremely interesting. They are no longer fascinated by our progress. Instead of that, I found in every capital I visited, and in the mind of almost every keen observer of international affairs with whom I conversed, a belief that we have for the present marked the high-water point of our overflow of exports into the European industrial field. And instead of credulous belief in the unlimited possibilities of our development, which seemed to be the average state of mind a year ago, there is today a feeling of grave conservatism and anxious interest in our future.

They note that the rapid increase of our exports came to a halt two years ago. They note that our imports in the last two years have been rapidly rising, the record for the fiscal year just closed being more than $900,000,000, against only a little over $600,000,000 in 1898. They note, too, that in spite of that tremendous balance of trade which government reports showed in our favor, a balance running, as I have said, up to an average of almost $600,000,000 a year, we do not seem to have any unusual command upon international credits, but we are as a matter of fact a considerable debtor in the world's exchanges, and that now, in the midst of extraordinarily bountiful harvests, and at the season when a movement of gold in this direction might normally be expected, we are concerned lest a high rate of sterling shall lead to gold exports.

If we are honest with ourselves, we must admit that the edge is off our invasion of foreign markets. Our totals are still colossal, but the rate of increase which they were making has been checked, and decreases have been recorded. Our exports of manufactures for the fiscal year just closed are $30,000,000 less than the point they reached two years ago. Our total exports of domestic merchandise fell off more than $100,000,000 in the year. Instead of decreasing exports we have made some large increases in our purchases of foreign goods, and the total for this fiscal year stands more than $300,000,000 above 1899.

If we chose to examine critically our domestic condition we might find there, too, developments not in every respect satisfactory. It must be with the keenest regret that we recognize unfavorable conditions that threaten a break in the unparalleled magnificence of this story of industrial growth. Nothing will better repay thought and study than inquiry into those causes, which seem to imperil a continuance of this wonderful period of prosperity. Nor can any investigation be of more vital importance than a consideration of what safeguards it is possible for us to provide, against the recurrence of these cycles of depression which seem always to follow periods of prosperity.

It is not my purpose, however, to dwell upon some of the evidences of inflation, upon a too free issue of securities larger than the value of properties warrant and more rapid in creation than investors can absorb, nor upon labor conditions fraught with serious menace which already mark their effect upon industrial totals. Instead of a broad survey of the whole situation, I wish to take up a single phase of it, a phase which has been well illustrated by a recent episode in financial affairs.

The Comptroller of the Currency, a few days ago, completed his report showing the condition of all national banks last month. That report, it seems to me, is one of the most significant that has in a long time come from the Comptroller's office, and it will well bear some analysis and comparison. If we are merely looking for large totals, we may again find them here, figures in some respects surpassing all previous records. The total deposits, individual, bank and government, in all national banks, foot up $4,527,000,000. Now, if we turn back to a similar report for the beginning of 1899, we will find the total of the same items $3,226,000,000. Now, for a moment, bear these figures in mind. Roughly, $4,500,000,000 deposits now, against $3,200,000,000 in 1899—and with that increase in the liabilities of national banks in mind, let us look at the figures representing the reserve basis. The total of specie and legal tenders held by the national banks last month was $508,000,000. The total at the beginning of 1899 was $509,000,000. Here we have had an expansion of $1,300,000,000 in deposits, while the basis of gold and legal tenders upon which that inverted pyramid stands is actually slightly smaller than it was at the beginning of the period. Now, in that same time the deposits of other banks—State banks, trust companies, savings banks, and private

banks—have probably increased not far from $3,000,000,000, and there is little likelihood that their gold and legal tender reserve is materially larger than—if it is as large as—at the beginning of 1899. We have had, then, in less than four years, an increase in the total bank deposits of the country of over $4,000,000,000, accompanied by no increase in the specie and legal tender holdings of those banks.

What has brought about this remarkable development of bank credit? The answer must at once come to the mind of any observer of finance, that the principal reason for the expansion of deposits and the accompanying expansion of loans is to be found in the great movement which has been the significant feature in financial affairs of the last half-dozen years—the movement to aggregate industrial establishments into single great corporate units, and to convert the evidence of ownership into corporate securities which have entered actively into the stream of financial operations. Vast amounts of new securities have been created in these half-dozen years, based in large measure upon properties which were before held as fixed investments by individuals, or if standing in the form of corporate property the securities of those corporations were more closely held, and in but small measure entered into the financial operations of the day. This movement—tending to convert the evidence of ownership of a great amount of fixed property into a form which has been considered a bank collateral, and which has been made the basis of loans and of corresponding increases of deposits—is undoubtedly the most important single cause for this increase of more than $4,000,000,000 in bank deposits and bank loans of the country in the space of three or four years.

Another important contributing influence has been the vast expenditures of corporations—railroad companies particularly—for the improvement, betterment and extension of their properties. New securities have been created, and the capital which was obtained by their sale has been converted into a fixed form of investment. When our railroads were first built economy in construction was the prime consideration. Now it has come to be that economy in operation is demanded. At first it was economy in the use of capital; now it is economy in the use of labor. And so we have seen, not only with the railroads, but in every department of industry, a lavish investment of capital in order that the cost of production might be cheapened.

Now let us suppose that all this great expenditure has been wisely made, and in the main I believe that it has, that every dollar which has been expended in the improvement and betterment of railroads, in the extension and better equipment of industries, will effect economies which will result in a saving equal to a fair interest return on the capital so invested. But, granting that the investment, from that point of view, has been wise, a consideration which we have perhaps in some measure lost sight of is that this whole great movement of improvements and betterments has been drawing from the fund such liquid capital and converting it into a fixed form, so that such capital cannot be fully returned into liquid shape, from the result of increased earnings, before the next ten or fifteen years.

If a farmer were to ask a country bank to loan him $10,000 to put up new buildings and generally improve his property, the banker, while admitting that the expenditure might be a profitable one in the added return which the farm would give, would say that the proposal was not a good banking proposition—that bank funds could not properly be tied up in an investment of that character, but must be loaned for objects which, in the natural order of the commercial season's progress, would liquidate the debt in a much shorter time than would be possible were the capital to be converted into such a fixed form of investment. Recognizing this principle, the National Banking Act very wisely prohibits loaning upon real estate. Sound as the security is, it is not within the lines of the banking principle which embodies the practice of making only such loans as will in the natural order of business liquidate themselves within a few months.

If a railway manager were to ask from his larger bankers a $1,000,000 loan to put into better bridges and heavier track, the same answer would be made. It would be unwise for a bank so to tie up active capital by converting it into a fixed form of investment. Profitable as the banker might be convinced the investment would be in the greater economies which it would bring to the operation of the railroad, he would see that it would be unwise financiering for him to

loan his deposits for conversion into a fixed form of investment which could not be liquidated should his depositors begin to reduce their deposit lines. Securities issued for just such purposes, however, form much of the basis of this increase of $4,000,000,000 of loans. The loans are excellent so long as A. can sell his collateral to B. should A. be called upon to repay, but if A. and B. should both be called upon to pay, there is nothing in the nature of these loans which will permit them rapidly to work out toward liquidation in the natural order of things. It is, in effect, a loaning of bank credit for conversion into a fixed form of property.

If, say, two-thirds of the total income from industrial investments were to be returned to the betterment of properties, and there should be issued in place of the capital so spent additional securities, the process would be wise and beneficial. If, on the other hand, there should be converted into the form of fixed property by expenditures for improvements and betterments a total amount of capital considerably exceeding the total annual income from such investments, the result in the end could lead only to disaster, no matter how wisely these expenditures for betterments and improvements might be made—because in the process there would be absorbed a larger and larger amount of liquid capital into the form of fixed investment, banking reserves would be reduced, and when bank deposits were demanded, though there might be the soundest of security back of them, it would be in a fixed form unavailable for liquidating the debts due to depositors.

It must be admitted, I believe, that we have been converting too great an amount of liquid capital into fixed forms of investment. What is the cure? The cure is, of course, to reduce the expenditures of that character so that they will come within the line of safety. What is the line of safety? It is, it seems to me, something well within the total income from such investments. If we go beyond it—if we convert into fixed forms of property more than the total income from the property—we have gone beyond the line of safety and are borrowing from the future temporarily to bury the capital. We have the choice of one of two things: Either to practise wise discretion or to go on borrowing of the future until we are brought up against a wall. The first course is consistent with continued prosperity, even if we do, to some extent, reduce the expenditure of capital for new construction, extensions and betterments. The second course, if persisted in, will bring confusion, disorder and paralysis on the whole constructive investment.

Another phase of this situation, and one which has aggravated the causes leading to an expansion of loans, and which has cut off from us the relief which we hoped for in the way of a foreign trade balance made tangible by gold imports, has been the rapidity and extent of the advance in prices. Back in 1895 and 1896 we were on a low level of prices, and we were imbued with economical ideas of administration. It was then that we began making great inroads into foreign markets and our exports had passed the $1,000,000,000 mark. In 1898 our exports had so increased and our imports so decreased that we had a balance in our favor of more than $600,000,000, and that balance was tangibly reflected that year in a net importation of $105,000,000 of gold. Then prices began to rise, the total of our exports did not hold up the next year, while our imports began to show a marked increase. In the subsequent years we were fortunate in exceptionally favorable agricultural conditions, of bountiful harvests at home and scantily filled granaries abroad, so that our exports showed some further increases; but our imports went up more rapidly than did our exports until, in the fiscal year just closed, we showed a total of imports nearly $300,000,000 more than in 1898.

The whole general level of prices has advanced, and some of these advances, from the extreme low level of 1897 or 1898 to the high level which has been reached within the last two years, are the sharpest in our commercial history. Pig iron, for instance, advanced from less than $12 a ton in October, 1898, to $25 at the beginning of 1900. Steel rails doubled in the same period, the price going up from $17.50 to $35. Bar iron scored even a greater percentage of gain within a shorter time, the price advancing from 95c. a hundred in July, 1897, to $2.60 in October, 1899. The quotation for clear pine boards has advanced from $45 to $73 a thousand; for brick, from $4.50 to $6; rope, from 5¼c. to 13c.; and salt, from 21c. to $1. Take the advance of some of the Southern products in that same period. We see linseed oil marked

up from 29c. to 68c.; turpentine from 26c. to 50c.; molasses from 28c. to 55c.

These extreme advances in prices have not been fully maintained, but the present level of market quotations is still 50 to 80 per cent. above prices in 1897 and 1898 for many commodities.

So the list might be continued. These examples are extreme, and the low level was probably unduly depressed. But they tell the story of why our exports have failed to go on increasing, and they have been an important influence in the inflation of bank credits.

When a railroad company had to pay $35 a ton, as against $17.50, for steel rails, its improvements become relatively very costly and its issues of securities against permanent betterments must be on a much more liberal scale. The cost of production in every direction has been increased until we find ourselves actually importing from some of the identical markets that two or three years ago were in a panic over our invasion.

Prices of securities advanced along with other prices, and attracted the holdings of foreign investors, until we swept the continent of Europe almost clean of our stocks and bonds, and greatly reduced the holdings of English investors.

We still had an ample total of excess of exports, however, and out of our favorable trade balance we could pay for reams of securities and still have something left. We did not stop at buying our own securities, but began making great foreign investments, to the astonishment of the financial world, turning the tables upon Europe and sending a great stream of credit for investment there. The result was that by the year 1900, in spite of a nominal foreign trade balance of nearly $550,000,000 in our favor, the net result of the gold movement that year was an export of about $4,000,000. The next year we brought in a few more millions of gold than we sent out, and we did the same last year, but since 1898 there has been, in spite of the theoretical trade balance, no significant shipment of gold in our direction.

There has, however, been a movement in international finance which is not reflected in the customs statements. We have been building up a floating debt to Europe, made up of borrowings in the form of short-time bills. The exact total of that floating indebtedness at the present time is one of the difficult problems of finance, but it must be very large. I have heard it estimated by financiers in foreign capitals as high as $200,000,000 to $300,000,000. That estimate, I believe, is far too high; but, even so, the total we must admit is important.

Particularly is it important in view of the statistics of bank reserves, to which I have before referred. In 1899 the national banks held 33 per cent. of reserve. In their vaults was a good part of the $105,000,000 of gold which had come in from abroad the preceding year. It was this excess of reserve which permitted loans to expand $1,300,000,000 since that date without adding a dollar to the stock in the bank vaults of specie and legal tenders. But now we have gone to the limit in that respect. This last report shows less than 21 per cent. of reserve for all the national banks of the country. Not one of the three central reserve cities was up to the legal limit. Twenty-two of thirty other reserve cities were below the legal limit.

We have seen what a great expansion of deposits and loans, both, remember, almost wholly but evidences of bank credit, could follow the increase in the reserve basis that came with the gold importations of 1897 and 1898. We see from this last statement of the Comptroller that the expansion has reached the utmost limit possible with the present basis of specie and legal tenders. Is it not well to ask, What of the future? If a $100,000,000 importation of gold can serve as a basis for an expansion of so many millions of deposits and loans, what will an exportation of $100,000,000 mean? Will not the answer lead us to ponder on the probable effect of future gold movements? Does our foreign commerce give promise of a trade balance great enough again to induce gold to flow in this direction? Let us examine recent records. For the first nine months of this year our imports increased over last year $56,000,000, and it must be remembered that the total imports for last year were $300,000,000 more than in 1898. On the other side of the book, our exports for the nine months of this year decreased $108,000,000, so that the record for the nine months shows a net balance of $164,000,000 more unfavorable than the corresponding nine months of the previous year. In the same time we have lost

$8,000,000 of gold. For the twelve months ending with September our favorable trade balance was $420,000,000, against $641,000,000 for the previous twelve months, a decrease of $221,000,000.

The evidences, then, of advancing prices that check exportation and increase importation, the absorption of our favorable trade balance in foreign investments and in the repurchase of securities, the uncertain totals of our floating indebtedness represented by short-time finance bills, all taken in connection with the fact that any reduction of the specie reserve held by banks must be followed by liquidation which will again establish the proper relation between reserve and deposit liability, would seem at least to point to the conclusion that this is not a time favorable for the expansion of bank credits.

I wish by no means to present an alarming view of the outlook. What I do wish to do is merely to sound a conservative note of warning. I believe there are in the situation tendencies in which are elements of possible danger. On the other hand, I by no means forget the long list of favorable conditions upon the opposite side of the account. I have the most absolute faith in our ultimate commercial ascendency. I believe no one who has carefully studied industrial conditions in this country and in Europe can reach a conclusion unfavorable to the prospect of our own progress. We have the cheapest and most nearly inexhaustible supply of raw material, the greatest genius in the handling of machinery for its conversion into manufactured products, the broadest single homogeneous market in the world upon which to base substantial domestic business, which will serve as a foundation for foreign commercial conquest. We have numerous advantages over our competitors, and in the end the combined effect of these advantages is absolutely certain to place us foremost in the world's commercial ranks. It is in no wise opposed to this view of ultimate commercial supremacy—a view which no one more strongly holds than I do—that I have pointed out conditions which I believe, if not guarded against, will threaten for the time being our continued progress toward that goal. A judicious recognition of the restricting conditions now visible in our financial situation may save us from disaster and humiliation later on—a humiliation from which recovery will be slow and painful.

VIEWS OF READERS ON RECENT BOOKS

THE WORLD'S WORK sent a letter to some of its literary friends asking them what recent books they had read with the greatest pleasure and profit, and requesting that their replies be after the manner of a personal letter. Some of these replies are as follows:

HENRY D. SEDGWICK, JR.:

Of all the books I have read lately, neither a very large nor a very miscellaneous company, the one which makes me most glad that it has been written is Mr. William James's "The Varieties of Religious Experiences." In the first place, Mr. James is the only master of prose whom we have in America, where the lack of early Greek training leaves most of us at the mercy of the commercial idiom; and, in the second place, his is the voice which gives utterance to ideas that, however vaguely apprehended and crudely held, are yet widespread and serious. Our religious beliefs, our religious life, if they are destined to any quickening, must receive fresh vitality and health from these or similar ideas; but so long as the people who held them were both dumb and also outside the pale of scientific sympathy, and, one might add, of scientific politeness, their ideas were useless to anybody except themselves. Today in Mr. James those people and that body of thought have a spokesman whose scientific reputation is unassailable, whose prose will travel farther and quicker than that of their adversaries, whose personality, so conspicuous in his pages, is a most persuasive argument. It is an odd turn of fortune's wheel that brings once more out of Harvard University, for so long a time

a hotbed of anti-religious thought, a leader, perhaps the chief leader of enlightened religious thought in America.

Mr. Scudder's "Life of James Russell Lowell" is the most interesting American biography I have read. Its goodness is due in part to Mr. Scudder's skill and tact, and in part to the exceptional position which Lowell held among distinguished Americans. He lived at a time when Massachusetts was the leading State in the Union, and he was an excellent representative of her morality, her intelligence and her conservatism. In the period which ended with Emerson's death, Massachusetts embodied an American edition, as it were, of English ideas and traditions, of English civilization in short, with modifications of course, but not such marked modifications as were at one time thought, and Lowell is a characteristic Massachusetts Yankee. Now America has become American, whether that be a gain or a loss, and her leading commonwealths are no longer under the direct influence of English tradition, and Mr. Lowell has stepped into his historical niche as a figure of a past epoch. Mr. Scudder wrote with admiration, with sympathy, with justice, and described the romantic period of Lowell's fervent youth, the time in any man's life most worth the reading, with the grace and refinement habitual to him. The best praise I can give the book is to say that it awakened my first feelings of admiration and liking for Lowell.

ALBERT BIGELOW PAINE:

As usual I am a belated reader of certain books that for a year or more a goodly number of worthy persons have been insisting are quite worth while. As usual I have become convinced that these worthy readers have reason for their complimentary conclusions.

Take, for instance, the "Cabbage Patch." The humanity of Mrs. Wiggs goes straight from her heart to the reader's, and the matter of a little artistic crudity, more or less, counts but poorly against tears that creep out unawares and laughter that rings true.

Then there is that great—that almost ponderous—book, the "Octopus." Long it certainly is—filled with careful, almost minute descriptive passages that the author works out with a lavish wealth of word and color, and is prone to repeat later, either in sentence or paragraph; but above and beyond all that is the glory of its wonderful picture of California with the wealth and mightiness of its product, with the play and passion of its struggle and its upbuilding—the struggle and the upbuilding of the West. Artistic faults are here, too, but rather from an overabundance of art than from any lack of it. Mighty in conception, Titanic in execution, no other such book has been produced in a generation.

I have likewise read "Kim." There are no flaws in Kipling's art. He is the great master of technique, and for the writer there is strong literary stimulant on every page. As the "Octopus" is a great canvas of California, so is "Kim" of India—a wonderful panorama of the under side of Hind. If it be not true, if it be only an illusion that this great Yogi of letters has prepared for our entertainment, then at least it is perfect in its deception, which, from the literary point of view, is equally to the purpose. The ending? Yes, I had expected that it would end with the death of the Lama, and Kim going forth into the world alone. But Kipling, the great master, did not do this, and he must have known why.

Remembering "Kim," recalls a book for those who, as Kipling's Lama would say, are "bound on the Wheel—of Things" and who "seek the Way." The "Kingdom of the Invisible," by Mary Platt Parmele, is a very small book—a short paper, in fact, read before the Wednesday Afternoon Club, but it contains the vital gist of whatever has resulted from investigation and progress along the paths of new science, pointed out by such pioneers as Spencer and Tyndall and illuminated by the Roentgen ray. The union of science and religion is the ideal consummation. The sorest of human needs is analytical proof of immortality. Perhaps we have not achieved these greater triumphs, but the way to them grows plainer, and to those still groping this little book may prove such a *chelâ* as was Kim, who led the holy lama to the little River of Peace that flowed through the gardens behind Saharunpore.

SARAH BEAUMONT KENNEDY:

There are certain books with so human a touch that in the reading they become as personal friends. Four such volumes lie on the corner of my table waiting to be transferred to the bookshelves, and with each of them I am loath to part.

"The Misdemeanors of Nancy," by Eleanor Hoyt, made of life a bubbling spring of laughter for an entire morning. This girl "with the Kentucky impulses and the New Hampshire conscience," telling her misdemeanors or flirtations to "the man who came often," is so deliciously entertaining that at the last page I bade her good-by reluctantly, saying, as one says to a delightful visitor, "Good-by, Nancy; come again."

The second book in my pile is also by a

woman. In "Amos Holmes," the old miller who says that "he and the old century came in together on an ox-cart and are going out together on a streak of lightning," Annie Fellows Johnston has drawn an indelible picture. . . . From the fine, well-seasoned character of Amos, through the coterie of rural philosophers in jean trousers and rawhide boots who congregate in the cross-roads store, down to "Perkins' oldest" trying vainly to establish a connection between the signs of the zodiac and the disemboweled gentleman they surround—in all the little company there is not a character that does not bear the stamp of nature.

In Ellen Thorneycroft Fowler's "Fuel of Fire" there is no one who equals the Lady Silverhampton of her other stories. To my way of thinking, Lady Silverhampton is the brightest and most vivacious woman who flashes through the pages of recent fiction, and it is a disappointment not to meet her again in this new story. As a novel, "Fuel of Fire" is scarcely up to the author's standard; but Miss Fowler can never be anything but delightful in her characterizations and dialogues; and with Nancy Burton dropping epigrams as that fabled princess dropped diamonds and pearls when she spoke, and with Lady Alicia setting up her cheap sentimentalities in such serious form and patronizing "dear Shakespeare" and "dear St. Paul," I did not lack for entertainment from cover to cover of the book. Miss Fowler is one of the few authors who bear reading twice.

And now I have come to the last of my four printed friends—and the last is by no means the least. In "The Right of Way" Gilbert Parker satisfies the reader's thirst for originality of conception and boldness of execution. Full of dramatic situations, the most dramatic of them all—probably the most dramatic touch in all modern literature—is in the death scene, where the hero, with his old daredevil spirit triumphing to the end, says to the wavering death-shadow he sees in his fevered fancy: "I beg your pardon—but—have I ever been—introduced to you?" The book had two other logical endings, but it was well worth the sacrifice of the logical to secure that thrilling scene. Gilbert Parker is a master of situations.

JOEL CHANDLER HARRIS:

In trying to remember the recent books that have made an impression upon me, it will be best to confess that every book I read makes an impression more or less lasting. But one of the most recent books, and one the effects of which are the most vivid, is "The Fortunes of Oliver Horn" by Mr. F. Hopkinson Smith. The narrative is the least important thing, but the characters stand out as do the figures in a painting, strong, clear, powerful. Another book on parallel lines is the story of "Aladdin O'Brien," which is vigorously wrought out, and in which the dramatic effects are complete. It is in order for the older hands, who never had any vigor or who have lost it if they had, to pout a little when they are confronted by things done by those who have youth at their elbows.

Another book that has given me great pleasure, and that has been a treat to some little girls of my acquaintance, is the story of Emmy Lou. I don't recall the title, and the book is not at hand, but it is a very beautiful study of childhood, and not less beautiful for its realism. The man who knows childhood completely knows everything that is worth knowing.

Along with this should be mentioned Mr. Mowbray's "Journey to Nature," where the boy is pictured forth with such exquisite ease, and where the young woman is made to shine in all her native simplicity. I don't know why, but Mr. Mowbray's method of handling his material reminds me of a series of acute social studies which appeared in the New York *World* when Manton Marble was editor.

I must not forget Booker Washington's autobiography, which is a very strong book. I could wish that everybody at the North could read everything Booker Washington writes or says. There is great need of education in that section with respect to the real relations between the men that represent the Negroes and the men that represent the South.

Then there is "The Quiet Life," by Charles Wagner, which interested me very much. But something in it (I have never been able to decide what it is) jarred on me and left a bitter taste in my mouth. Yet it is a book full of the largest and most important truths.

In "The Heroines of Fiction," Mr. Howells gives some delightful pictures in the way of comment or criticism. You may not agree with everything he says, but you are certain to agree with the way he says it, and you are certain to admire his catholicity of taste. I commend his book to young women who have not the opportunity to read all the books in which the heroines are embalmed. In introducing them to modern readers, he covers the whole ground of English fiction, and presents the young women in a way that is delightful.

And now, if you please, I will return to the works of the late Mr. Charles Reade. I was deep in "The Cloister and the Hearth" when you interrupted me.

AN AMERICAN IRON-WORKER IN CENTRAL AMERICA

ON the wave of American activity that pulsed round the world in the Spring of last year went an iron-worker from New York to a Central American republic. His task was to superintend the iron work of an American building going up by no plans more definite, he asserted afterward, than a wash drawing of how the structure would look when completed, and under the direction of an engineer whose books said a foot of concrete would support 30 tons, without telling what would support the concrete. Thus it came about that the concrete foundation was set on the top of the ground—and made ground at that. The iron frame-work had not twisted very far out of plumb, as the concrete sank, when the engineer resigned and the iron-worker foreman was made construction boss, inheriting the prophetic wash drawing, by this time somewhat soiled, and a very pretty problem.

"I am a housesmith and bridge builder," said he to the company's superintendent, "but if you say 'Tackle the whole thing,' why, I'll tackle it."

And he did. He was then but thirty, with the blackest of hair: he is thirty-one now, and his hair is gray.

"Hot!" said he, "the sun is only about a foot above your head down there! And in the rainy season the water comes up to your chin! And trouble—there is nothing but trouble."

His first task was to jack the building up and put in new foundations fifteen feet deep. He discharged the other American foremen, chiefly because they were poor workmen and incidentally because they fought one day. Then he turned architect and engineer, making his own plans as he went along. Later by turns he became boss mason, boss carpenter, boss plumber, boss blacksmith, forced by inefficient native foremen to oversee every petty detail.

Two hundred negroes and fifty peons were his workmen—the peons from the interior dying like flies of the fevers in that swampy coast-land: yellow fever and black water fever, with malaria as the normal state of health between the attacks. He took the yellow fever himself, and after walking four miles to hospital under a broiling sun, with his temperature at 103, returned to work in a week, just in time to see a peon holding the guy rope of a gin-pole drop the rope to light a cigarette, while the gin-pole majestically toppled over and broke.

"I'se a carpentah, boss," would plead one of the itinerant negroes that voyage about the Indies and through the Isthmus in search of work.

"I don't need a carpenter."

"Well, sah, I'se served mah time as a blacksmith in the Barbadoes."

"Nor a blacksmith."

"But I'se a mason, too."

"I don't need a mason; I want an electrical engineer."

"Well, sah, I learned that profession in Jamaica."

"All right. Take that hod and go to work. You'll find the mortar over there."

This was the formula. No negro lacked verbal education; no negro was ignorant of any trade or profession nameable; and all were lazy and unteachable. All of them claimed to be "English gentlemen, sah," and "mistahed" one another. If back pay was forthcoming, they considered discharge a joke. It is no uncommon thing for foremen to coerce them with revolvers; one foreman, a little cold-blooded man from Alabama, had moved from the west coast of the Isthmus clear around South America to the east coast, "leaving," his reputation ran, "a trail of dead niggers behind him." But the iron-worker kept his revolver dumb, and discharged the workmen in squads. In the year and four months the work lasted the gang of 250 represented between 4,000 and 5,000 different men.

To add to fever and heat and exasperat-

ing workmen came revolutions. In one the President called for volunteers. Away from a nearby ranch marched forty peons headed by the overseer, who carried this note: "I send forty volunteers. Please return the rope." A few days later the alcalde of the town sent a file of his barefooted soldiers, armed with old Remington rifles longer than the men, and long-barreled pistols hung so low in the middle of the back that they gave a ludicrous suggestion of tails, and arrested all the iron-worker's peons. Building stopped. All that day came official reports of a battle at the capital: first "150 dead and 400 wounded;" later "800 dead and impossible to count the wounded." Next day's more accurate report showed two killed and none wounded. The battle had consisted of penning a handful of insurgents in a building and shooting all day at the stone walls with an old Spanish bronze cannon loaded with American wire nails. At six the insurgents surrendered on the plea that they were willing to die for liberty, but that going without supper was not nominated in the bond. Thus ended the revolution. The following day the peons returned to work.

And so it went. The framework proved to be too slight and when the building was all up the beams began to give and bend under the weight. That meant a thorough strengthening of the frame with patches and new beams—not an easy problem at that stage of the construction. Then at the very last the iron-worker received notice for the first time that the company had "planned" to have three large water tanks in the top of the building—there was more tearing up of old work and more strengthening of the frame.

But it was finished at last. "It took," said he, "250 men sixteen months. Properly planned, 100 American workmen could have done it in three."

TELEPHONING THROUGH THE EARTH

FOLLOWING directly on Marconi's wireless experiments and success come with peculiar interest the achievements of Mr. James Tarbotton Armstrong, a well-known London engineer.

The man who shares the credit of these developments of wireless telegraphy and the discovery of the wireless telephone with Mr. Armstrong, is Mr. Axel Orling, a young Swedish electrician. He is two years younger than Marconi, to whom, inevitably, he has b en described as a rival. Mr. Armstrong is a Devon man in the prime of life, energetic, enthusiastic, full of schemes. Messrs. Armstrong and Orling appear to have stumbled across their system of wireless telegraphy while at work on something else. They met first about five years ago. Mr. Orling's fame as the "Edison of Sweden" had reached Mr. Armstrong, who secured him to work upon certain experiments. One Saturday afternoon three years ago they were busy experimenting with electric light, when Mr. Armstrong suggested that, with the extraordinary power they were getting, it would be well to try whether they could not send electrical impulses through the ground for telegraphic purposes. The success of the experiment marked the beginning of what are known as the "Armorl" discoveries—this word being derived, of course, from the first syllable of each of the inventors' names.

A familiar illustration will explain the theory of the discoveries. Cast a stone into a pond, and you start circles which grow ever wider till they reach the bank. As a pond is full of water, so is the earth full of electricity. Messrs. Armstrong and Orling found it possible to start the electricity in the earth into waves by a slight impulse. Briefly put, therefore, their system consists of tapping the ground and sending electrical impulses by means of a specially constructed transmitter to a very sensitive receiver. In the transmitter and receiver lie the secrets of their invention.

The Armorl system of wireless telegraphy was publicly exhibited last autumn at Desburga, Mr. Armstrong's residence on the north-east confines of Highenden parish. Besides utilizing the earth as a conductor, the system is distinguished from others by the fact that the currents discharged are of very low potential. A current of eight volts is more than sufficient to transmit a message twenty miles; it has actually been done with a current of only four volts. Another advantage the Armorl system claims over the Marconi is that an elaborate apparatus is not necessary; there are no induction coils, coherers, or high masts. The whole apparatus weighs five or six pounds, and can be put into a little box. It comprises a receiver and a small battery packed in a case, having two contact screws on the outside. Two pointed iron stakes are driven into the ground to a depth of about eighteen inches and about twelve feet apart. To each of these is attached a wire connecting respe tively the negative and po itive poles of th instrument. A small key similar to that used for dispatching Morse code signals is attached, together with a telephone receiver. The current thus set up flows through these wires and stakes into the ground. The operator holds a telephone receiver to his ear with one hand, while with the other he transmits

the message in the ordinary dots and dashes. At the opposite station similar iron stakes are placed to receive the impulses, and here, if necessary, the receiver can be connected to a Morse tape-printing machine, and the messages printed as they are received.

The important thing is the receiver, which supplants the "coherer." It is an electro-capillary relay, by means of which the most feeble impulses are able to operate a receiving apparatus, the operation depending upon the electro-capillary force exerted at the surfaces in contact of certain dissimilar fluid conductors when an electric current passes from one to the other.

For long-distance telegraphy—that is to say, beyond twenty miles—the air is used as a conductor, but here again superiority is claimed for the Armstrong-Orling system. "Whereas the best relay in the market with eight volts is equal to a transmission of 1,699 miles," says Mr. Armstrong, "ours is equal to one of 12,990." It has not actually been tested over that distance, but it has been tested by opposing to it a resistance equal to that distance. There are, therefore, the two systems of wireless telegraphy—a ground system for short distances, and the ordinary pole system of spark telegraphy for long distances. But the poles in this case are only one-tenth the height of those employed by Marconi; and it is also claimed that a hundred letters can be sent in the time needed by Signor Marconi for sending thirty-six. "Our 'coherers' are so much more sensitive than his," says Mr. Armstrong; "and where he can send a message a hundred miles, we can send one a thousand. We are able to take up impulses, through the sensitiveness of our apparatus, that no other system can take up." Marconi uses the Hertzian waves, and Hertz's apparatus for receiving them. Messrs. Orling and Armstrong receive the Hertzian waves by a receiver designed by themselves.

A WIRELESS TELEPHONE

THE wireless telephone—perhaps of all the Armstrong-Orling inventions the one most likely to affect the general public—is a later adaptation of the same system, and represents a great addition which the inventors made in the interval to the power of their transmitter and the sensitiveness of their receiver. Compared with present-day telephones, it recommends itself on the ground of cheapness and simplicity. The transmitter consists of a wooden pedestal twelve inches high, surmounted by a dial of thin wood, behind which are microphones. Under the pedestal is a network of switches, screws and wires. In addition, there is a small bar with four brass screws and four wires; the screws are marked E1, b, B, and E2—the letter E denoting "earth," and B "battery." Two wires are connected to B and then to the battery—an ordinary primary battery—and two wires to E1 and E2; and the latter are then run a foot or so into the earth. Five miles away the other man does exactly the same thing, with a precisely similar apparatus. You press a button, a bell rings at the other end, and the conversation begins. The instruments are sent out in pairs, each instrument having its affinity. "It is," Mr. Armstrong explains, "solely a question of vibrations." A tuning fork pitched to C will, if set vibrating, vibrate another tuning fork pitched to C, but will leave one pitched to D unaffected.

I asked Mr. Armstrong how the presence of many instruments together in a city will affect the efficiency of the system. "Suppose," he replied, "an exchange as the centre for hundreds of instruments. They are all varied in their vibrations. Suppose you want to call me up, and I vibrate at 10,000, you at 5,000. You call up the exchange, and either you are raised to 10,000 vibrations or I am brought down to 5,000, and we are at once in sympathy with each other and can speak. Even a private installation is capable of, say, half a dozen variations of vibrations; thus six places may be at your call. But beyond that, the mechanism might be too complicated for a private installation, and you would have to speak through the exchange." The capacity of the telephone is not determined by the intervening space; a greater distance can be covered according as the transmitter is made more powerful and the receiver more sensitive.

WIRELESS INVENTIONS IN NAVAL WARFARE

AS factors to be reckoned with in the naval warfare of the future, the Armstrong-Orling inventions have won great praise from an authority so high as Sir William Laird Clowes, the historian of the British Navy. "Cheap and simple in application," says this expert, "requiring no expensive or permanent installation, being independent of atmospheric conditions and material instructions, and working through earth and water instead of through air, they should revolutionize naval signaling, especially in fleets They should also open a new era in submarine mining and countermining, and lead to the displacement both of the Whitehead and other automobile torpedoes, and of submarine boats in favor of controllable weapons manipulated from a distance without the intervention of wires."

They furnish, for example, among other things, an improved means of propagating electrical impulses and of giving them a definite character; an efficacious means of restoring the detectors to their normal condition after the reception of such impulses; and means by which a torpedo or other craft may be caused automatically to follow the course of a beam of rays.

A practical demonstration of controlling a torpedo by these means took place at Stockholm four years ago, in the presence of King Oscar, and in 1900 an "actinaut"—a vessel so propelled and steered—was run successfully at Portsmouth over a distance of three miles. The name "actinaut" seems to have been applied first by Sir William Laird Clowes, who derives it from the circumstance "that the actinaut is to the dianemic torpedo what wireless telegraphy is to the older telegraphy." The actinaut is very small, containing only her engine, power chamber, steering mechanism and explosive head; she is shaped for great speed; the depth at which she is to strike a doomed vessel is about ten feet, and that is her constant depth when running. Mr. Armstrong described as follows the best means of installing a system of coast defense, and the same, he says, will apply with very small modification if worked from a ship.

(It is suggested that the actinaut is even capable of being controlled from a balloon.) It should be explained that the apparatus worked by the controller measures only nineteen inches long, by seven inches broad, by eight high.

"Supposing," says Mr. Armstrong, "that at the Coast Guard station, say for instance at the top of the cliffs at Dover, there is placed the apparatus necessary to guide the actinaut. Out at sea or in the harbor are anchored several actinauts. An enemy's ship is seen advancing, say from the French coast, and as soon as the operator (who is well trained) thinks fit, a button is touched and this immediately releases an actinaut, and at the same time starts her machinery. The operator simply guides her by means of invisible radiation, entirely under his control till she strikes the vessel, but another operator can at the same time be working another actinaut having the same object in view, without in any way interfering with the first one, or a third operator can be directing still another actinaut to another vessel, if one is seen approaching. Supposing now it is thought best not to allow the actinaut to follow the ship—she can be brought back to any station or ship." Needless to say, the actinaut has been brought to the notice of the British Admiralty. At the time of writing, also, the Navy Department of the United States is engaged in testing the Armstrong-Orling inventions.

Another and vastly important application of the system enables ships to learn automatically whether they are near to the coast, and if so, to what coast. The value of this during foggy weather or on dark nights needs no emphasizing; it would also obviate the danger peculiar to small vessels where no special watch is kept. A ship is supplied (at the cost of a few dollars) with a transmitter and a receiver; a similar apparatus is placed on the shore (or on a lighthouse or a lightship); both can be set for one, two, three or more miles, as may be required by the coast authorities. Immediately the ship comes within this radius it is made aware of the fact by its instrument, and can communicate with the shore. This can also be applied to "ships that pass in the night" in midocean, enabling them to "speak" each other. Other uses of the system embrace railway and fire-alarm signaling—it is capable of lighting and extinguishing a light from a distance of several miles; and the explosion of mines.

It is, however, in the private and commercial spheres of life that these inventions will doubtless find their widest scope for the present. Inquiries have come to the makers from all parts with regard to installations. It will indeed be a revolution when the unsightly overhead wires disappear, and when one is no longer confronted with the "no passing" for telephone repairs.

Suppose—from the point of view of diversion, if you like—you have one of these telephones in your dining-room. Your neighbor, accompanied by a boy carrying two crowbars and a sledgehammer, walks into his garden; the two crowbars are driven into the ground to a depth of a few inches, about twelve feet apart, and the wires are fastened to them. Without further ado, he converses with you with the greatest ease. This at least will convey an idea of how convenient, how matter-of-course, how much a part of every one's daily home life—to say nothing of how important a part in army signaling in the field—the telephone of the future may become.

AN ENGINEERING FEAT ON LOOKOUT MOUNTAIN

TOURISTS, from President Roosevelt and Prince Henry to the humblest, include Lookout Mountain in their itinerary. It possesses historic interest, for here Hooker's famous "Battle Above the Clouds" was fought Low in the northern slope of the mountain, not much above the level of the

river, is the entrance to a cave. Some years since a party explored this cave. They met the usual obstacles of the cave explorer, and after climbing and crawling, pulling themselves through small holes, squeezing themselves flat in tight places, wading and scrambling, they at last reached an immense vaulted chamber. A beautiful room it was, with stalagmites and stalactites to adorn it; but its striking feature was a stream, sparkling and cold, which dashed roaring from the roof, far above them. The scarcity of water on the mountain had always been remarkable. Indians had roamed the slope, warriors had scaled the heights, countrymen had lived out their lives there, summer residents had come and gone, sightseers had gazed, and wondered, and pursued their way, while here below them, all unsuspected, old Lookout had held his deep stores.

There was found no possible way of scaling the walls of the lofty room, to follow the stream to its source, and the party retraced their way. Then the active brain of one young man fathered a daring plan. Born under the shadow of the "Point," and grown to a manhood full of energy, he proposed to bring this deep-lying water and give it to drink to the people in Chattanooga. He was laughed to scorn. "Wild idea; utterly impracticable; visionary," met him on every side. His friends did not encourage him, and capital was hard to interest. With engineers he again sought the cave. It was not possible to measure the height of the fall. Original experiments with lighted balloons were invented, and its height estimated. This, then, was the perpendicular of a right-angled triangle; the way they had come, from the entrance to the cave, was its base; the rough, uneven slope of the mountain side was its hypotenuse. If they could find exactly the point at which the hypotenuse met the perpendicular (extended) they would reach the water. The chances of failure did not daunt Mr. Anderson. A shaft was sunk. Into solid limestone it went, daily a little deeper, until, at a depth of forty feet, it reached the spot where the mountain stream began its plunge into the cavern they had visited, three hundred feet below. It was found to be of greater volume than they had anticipated, flowing one and one-half million gallons in twenty-four hours.

Some plan for bringing the water to the surface must now be adopted. It was decided to tunnel in a straight line from the stream to the surface. This interesting tunnel is 200 feet long, six feet high, and from five to eight feet in width. Its walls, its floor, its roof, are the everlasting rock of the mountain, and scarcely a break or a fissure mars them. The stream was turned into this tunnel, and now no longer thunders down into the lower cave. Once at the surface, only the ordinary problems of the water-works man were to be solved. A reservoir was built, and the water piped to Chattanooga, two miles away and three hundred feet below. And now it is also pumped to the top of the mountain.

A ONE-MAN SURVEY

THE United States Geodetic Survey, among many other things, has charge of the charting of the coast and river lines of the country. This branch of surveying is done usually by means of preliminary triangulation, followed by actual plotting in the field with plane-table and alidade.

On one of these survey parties a certain young college graduate from the South secured a position as temporary aid, taking the trip, which was along the shores of the Chop Tank River in Maryland, more for his health than anything else. He had some knowledge of surveying, and was able to be of enough assistance to his chief to be allowed to do much of the real work of the plotting, relieving in no inconsiderable degree the failing sight of the supposed surveyor. It thus happened that when the captain in charge of the party was taken ill and had to leave for home, Franklin was ordered to complete the remaining unfinished thirty miles of coast line as best he could.

Everything went well for the first twenty miles, and he was calculating on finishing up two days before his expected time, when his table man and one of his rodmen left him in the lurch, one from malaria and the other for reasons unknown. Nothing daunted, the young aid secured the services of two young negroes for rodmen, and although their stupidity retarded work a good deal, seven more miles were done when the remaining rodman, promoted to table man *vice* the deserter, sprained his wrist. Still not discouraged, Franklin continued work with his two colored helpers, until only the southwestern part of a small island near the mouth of the larger Chop Tank remained to be plotted.

Arriving there on the last morning of his time, he set up his table, and as soon as it was light enough, started his boys to work, doing the sight taking, measuring and plotting himself, besides signaling his own rodmen. This continued for half an hour, and he was about to move his table to a new station, when both

boys returned on the run, dropping their rods and informing their indignant employer that "dey's a house ovah dar wut's got de small-pox, Boss, and we'uns cayn't do no more wuk hyer—no sah! Deed'n we cayn't!"

Threats and entreaties were alike useless. The negroes refused to move, and finally slouched down the beach to an old boat and paddled to the mainland.

His first thought was to give up, but remembering that only two miles remained to plot, he set about the unheard-of task of surveying it by himself!

Procuring the two discarded rods, he set them up in the sand at the proper points. Returning to his table, the rods were sighted, the distance measured and the angles plotted, after which another tramp was made, the rods replaced in new stations, his steps retraced to the table and the process repeated. It was very slow and very hard work, particularly discouraging, when, as happened once, both rods fell over in a sudden gust of breeze, just as the first sight was being taken. That, of course, meant another quarter-mile tramp and return. Every three-quarters of a mile, and sometimes oftener, the heavy table had to be moved and a return made to the base for the instruments and accessories.

It was nearly dark when the last line was drawn, and the stars were out when a very tired and hungry one-man surveying party got his traps to his launch. A ten-mile ride up the river to his farmhouse quarters remained, and he found that running a forty-foot gasoline launch and being engineer and pilot, too, was rather hard work.

It would be pleasant to chronicle a real reward for such pluck and stick-to-it-ive-ness, but the only meed of appreciation out of the ordinary which he received was a cordial letter from his chief, praising his effort and faithfulness, and carefully omitting mention of the fact that a week or two of delay in that particular chart would have made no vital difference.

AN ADVENTURE OF A NEWSPAPER MAN

NEWS of the blowing up and sinking of a steamboat on the Ohio River some distance from Pittsburg reached the office of a Pittsburg paper one evening some years ago. A supply of money was hastily thrust in a young reporter's hands—a reporter who has since risen to journalistic prominence—and he was instructed to get to the scene as rapidly as possible. A hurried trip to the station, without stop for anything, enabled him to leap on the first express bound westward. Once on board, he was informed that the train did not make a stop, after Allegheny, until about sixty miles beyond his destination. A cautious hint from a Pullman porter apprised him of the presence of a division superintendent on the train, and in a few minutes he secured an order on the conductor to have the train stopped for him. Reaching the little station late at night, he asked the telegraph operator to remain until he returned. Walking several miles to secure his "story," he returned as quickly as possible, only to find that the operator had disregarded his request and had closed the office.

With time creeping into morning hours, and the prospect of his work going for naught unless he secured an operator to get the story to his office, he desperately tramped about the unlighted village, only to find that the man he wanted lived several miles distant. Unsympathizing country folk who vouched that information through closed doors could not be induced to exert themselves further.

The young fellow, thinking hard, walked back and forth on the railroad platform. Suddenly he noticed the sleeping form of a tramp huddled against the station. Disturbing the latter with a vigorous foot, he offered the prostrate man five dollars to make a hurried trip for the operator.

The man quickly got to his feet.

"Do you want an operator?" he asked.

"Certainly," with some emphasis.

"Well, I'm a 'bum,' but I was an operator. If you can get into that station, I'll send your stuff, but I won't touch a door or a window myself."

Without talking further, the reporter found a cudgel, broke the window, clambered in and cleared all obstacles. The tramp made good his claim and the reporter's last difficulty was dissipated. The tramp clicked off the story, and the copy reached the office in time to go to press. The reporter told the story once—many years later—as an example of what "luck" will do for a man.

THE STORY OF A BOTANICAL COLLECTOR

FATE had placed me in the far Southwest, on a ranch, removed from town, and in a sparsely settled community. I had had only the ordinary high school training in an educational way, and as most of my life had been spent in the city, the usual avocations of the farmer's daughter—butter making or poultry raising—did not appeal to me.

I had always been fond of the study of botany in my school days, and I had made some very creditable collections at one time

and another. I began analyzing the flowers about me, and noting those which might be most adaptable to floriculture. Then, as the seasons came on, I made several sets of dried plants, carefully selected for study, and one hundred varieties in a set. In the meantime, from catalogues and from magazines, I had secured the addresses of leading seedsmen and florists. I wrote these people, and fully ten per cent. of them replied encouragingly with small orders for seeds. Many of them congratulated me on my new enterprise and promised larger orders for the future, and a half-dozen volunteered information about varieties desirable for the European market and best methods of gathering and saving. Two men sent me the addresses of other firms that would have patronage for me, and among them some large European dealers. Through the Academy of Science in the largest city of my State, I secured the addresses of leading curators in such institutions as the Arnold Arboretum at Harvard and like institutions East and West. I easily secured orders for herbarium specimens unmounted, and within a year I had a considerable business, conducted entirely by mail.

My correspondents were most of them college men, and the letters of instruction I received from notable botanists for whom I eventually made collections for study purposes were as good as a course of lectures at college for me. I never filled an order with an inferior specimen. I always carried out to the minutest detail all instructions. Very frequently I was detailed to make special field notes concerning trees and plants for busy men who could not leave their classes and home work. At the end of three years I calculated thus: Net gain: perfect health; a horse and buggy; a small house that served as the herbarium; a business which was equivalent to about eight hundred a year, with the best of prospects for increase; new and valuable friends; and much training in a delightful branch of natural science.

HOW A SMALL INDUSTRY HAS DEVELOPED

RAISING watermelons solely for their seed, to supply the Eastern seed firms, has become a profitable industry in Kansas. Most of the watermelon seeds used in the United States are now produced in the semi-arid region of this State. Melons are grown by hundreds of acres, on the same large scale that corn is raised, and are harvested and threshed after the manner of other crops. No account is taken of the fruit, which is treated as the chaff of the product.

Two years ago an Eastern seed firm sent a representative to western Kansas to interest the farmers in the experiment of raising melons for the seed, with the guarantee of a market for their product; farmers were taken with the idea, and the venture has proved profitable to them and to the seed firms. From a small beginning the industry has grown until many farms are now devoted exclusively to watermelon raising. Some farmers in the dry portions of the State have abandoned even such a staple crop as corn, preferring to take chances with melons, which thrive in dry weather, while corn often fails for lack of rain. Land which in dry weather will not produce an average of a thousand pounds of corn to an acre will produce from thirty to fifty tons of melons to an acre, even under the most unfavorable conditions. The fact that melons can draw sustenance from dry soil makes them a desirable crop in the extreme western part of the State. Another important consideration is, that the cost of producing an acre of melons is but little more than the cost of producing an acre of corn, and the profits are from three to five times greater than could be realized from any other crop which would grow in that climate.

Home-made threshing machines, constructed especially to meet the requirements, are used for separating the seeds from the melons. At the bottom of a huge hopper is a cylinder armed with long, sharp spikes, which is run at high speed by horse power. The melons are thrown into the hopper, and the teeth of the cylinder quickly separate the seed-bearing pulp from the rinds. The hopper discharges into a great cylindrical screen, set on a slight angle, in which long arms revolve on an axis, constantly stirring the mass of pulp and pushing the seeds through the screen. By the time the mass reaches the waste pile all the seeds have been separated from the rinds. The seeds are stored in a vat with a portion of the pulp which comes through the screen. Water is turned in, and when fomentation begins the seeds float to the surface. They are skimmed off and dried, and are then ready for market.

MAKING AUTOMATIC MACHINES TO ORDER

A LITTLE New England factory makes, among other things, a useful kitchen utensil which is sold yearly by the hundreds of thousands. Small as the article is, it is somewhat complicated, and requires a large number of different "operations," to use the factory term, before the completed utensil is ready to be packed for the market. That is to say, the material went down line after line of laborious foot and hand presses to be cut

and punched and shaped and fitted. With an idea that many of these slow, costly and wearing processes might be done away with, one of the officers of the company talked one day with a concern near by who make automatic machinery. He showed them the article in the various stages of its development.

"Now, gentlemen," he said at last, "can you simplify, cheapen and quicken our productive power, and if so, what will it cost?"

The men figured for a few minutes.

"Yes," they said, "you can do practically all of the detail work with two machines, which will require only sliding on the belts and a fraction of one man's time to watch them. These machines will do as much in an hour and a half as a dozen workmen and presses are doing now in a day. They will cost you —— and you can have them in two months. You can figure your own costs, and if the change is worth your while we'll go to work immediately."

In two months that part of the work was entirely changed; men were put at other tasks where they had long been needed, money was saved daily, and the output of this particular article has been larger and much more simply obtained, and people are buying the utensil more cheaply all over the world.

The concern that made these machines does nothing else but fill orders of this sort, and with other similar companies it is helping to conserve to New England by ingenuity the first place in American manufacture, while great factories are being built and run near the supply of raw material.

BUSINESS TRAINING FOR COLLEGE MEN.

THE just graduated college man who has no further plans for the future than that he is "going into business," has considerable difficulty in finding an opportunity. The employer everywhere is looking for young men of education and ambition. Employment committees and bureaus of information at the colleges try to find places for their graduates, but the problem of bringing the two men together, the one wanting work, the other wanting men, has perhaps never been so practically solved as it was last summer by Mr. Gage E. Tarbell, of the Equitable Life Assurance Company. Mr. Tarbell had worked his way up from small beginnings; he had indeed written insurance to pay his way while he was studying law, and he was interested in the possibilities of young men who get started properly. As an officer of his company he saw, furthermore, that the colleges every year were turning out men who were potentially splendid agents for insurance. The problem was to get them interested, to teach them the business and to set them to work.

Last spring, therefore, almost too late to get the best results, he wrote to a large number of colleges, telling them that he was planning to run a post graduate course in insurance during the summer; that he was ready to pay the boys' living expenses during the course, and that he would guarantee every fellow who took the course a living salary when the short study period was over. He invited their coöperation and he got it to a surprising degree.

On July 1st, when the classes began, 120 college graduates entered to learn the insurance business. All went to work immediately, the boys, dignified heads of departments, who told them in concise, business-like fashion the important things they needed to know, and Mr. Tarbell himself, who plunged with inspiring earnestness into this plan he had developed. A good share of his teaching was in practical demonstration of how to write insurance. He set the men at work in the city and held every day testimony meetings of their experiences. He had the different men in the class insure each other before the rest of the 120. And he did not forget that the boys needed recreation. He sent them to the theatre and out for other pleasant evenings. The result was that these college men had a busy and enjoyable month in which they learned the elements of practical insurance work from the men who could most directly and most quickly teach them. At the end of the course most of the men took two weeks' vacation, and were then assigned to definite territory at a guaranteed salary of $75.00 a month and an opportunity to make much more in commissions. They were enthusiastic about their work and about the man who had given them their opportunity. And the reports of their achievements so far show that the experiment has succeeded beyond even Mr. Tarbell's hopes. Plans are now being made for next summer's session.

The importance of this successfully carried out plan is many sided. It not only gives a large number of educated young men free practical schooling in insurance, and then offers them a splendid business opportunity, but it may very possibly be the beginning of a generally accepted scheme by which college-bred men can quickly find their places in whatever business they care to choose, and by which, as well, employers can immediately reach and train well-equipped employees. It shows a new and higher appreciation of the value of college men in business, and is replacing old-time prejudice.